TECHNICAL MANUAL

CIRCUIT DIAGRAMS

RADIO SET

AN/TRC-87

(MOTOROLA INC.)

F34601-70-C-0814

BASIC AND ALL CHANGES HAVE BEEN MERGED TO MAKE THIS A COMPLETE PUBLICATION.

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Change	3	1 Nov 69			

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INTRODUCTION

PURPOSE OF MANUAL. This manual provides a common reference source for the circuit diagrams applicable to Radio Set AN/TRC-87. These circuit diagrams are to be used in conjunction with the operating and maintenance information given in the Service Manual, T.O. 31R2-2TRC87-2.

SCOPE. This manual pertains to all units and assemblies to which a schematic or cabling diagram may be applicable. It supplies the information needed for determining signal flow in and between units of the radio set as well as a circuit reference when repairing and troubleshooting the equipment.

ARRANGEMENT OF DIAGRAMS. The diagrams in this manual are grouped in the following order: schematic diagrams, block diagrams, and cabling diagrams. The schematic diagrams are further arranged into five groups; transmitter power supply, transmitter, receiver, remote equipment, and shelter schematics. Note that several schematics apply to both automatic and manual models of the equipment as well as to both receivers and transmitters. For example, the mf crystal oscillator is used in both automatic and manual transmitters. This module is listed in the table of contents without a "manual" or "automatic" prefix. Any module or chassis that is used only for manual or automatic are prefixed accordingly. This same module is also used for transmitters and receivers. Accordingly this module is listed in the table of contents with a "transmitter and receiver" prefix. Any module or chassis that is used only for a transmitter or receiver, etc., is not prefixed.

Table 1. Special Symbols

SYMBOL	DESCRIPTION
▭	Lettering enclosed in box denotes front panel screening.
P/O	Abbreviation for "part of --" used when a connector symbol is split and shown in more than one location on a schematic diagram.
	Prefix to be placed before a semiconductor or tube type number for replacement purposes. Example: ◆2N652A denotes that a USN2N652A type transistor is the approved replacement item.
▲	JAN
■	USA
◆	USN
✚	USAF
⊸⊤⊸ or ⊸---⊸	Feedthru filter capacitor (filtercon) with a ferrite inductor insert.

MULTICONDUCTOR WIRING TABLES. Data regarding the multiconductor wiring between the equipment and the shelter power distribution panel is provided in the form of wiring tables. These tables supplement the shelter schematic diagrams and are to be used in conjunction with them. The tables identify each wire with regard to destination, function, and color. In cases where more than one wire connects to a terminal, the function is listed only for the first wire. The wire colors are provided using standard color codes as shown in table 2.

Table 2. Multiconductor Wiring Color Code

NO.	COLOR	NO.	COLOR
0	Black	5	Green
1	Brown	6	Blue
2	Red	7	Violet
3	Orange	8	Gray
4	Yellow	9	White

CROSS REFERENCE INDEX. Table 3 provides a cross reference listing between the equipment common names, part numbers, and manual page numbers.

WAVEFORMS AND SIGNAL VOLTAGES. Refer to T.O. 31R2-2TRC87-2, Service Manual, chapter 5, section I, Organizational/Field Performance Tests for the waveform and signal voltage test conditions which apply to the data which appears on the schematic diagrams. Resistance and dc voltage measurement conditions appear on each schematic.

Table 3. Cross Reference Index

COMMON NAME	NOMENCLATURE (MOTOROLA PART NO.)	PAGE NO.
Audio Amplifier	01-38580A01	42
Audio Preamplifier and Squelch Amplifier	01-38581A01	40
Audio-Servo Amplifier	01-38600A01	43
Audio-Servo Preamplifier and Squelch Amplifier	01-38601A01	41
Carrier Agc Board	01-38568A01	21
Filament Power Supply	01-38573A01	2

TIME COMPLIANCE TECHNICAL ORDERS. This manual has been changed or revised to reflect equipment changes effected by the following Time Compliance Technical Orders (TCTO's).

TCTO NO.	TITLE	DATE
31R2-2TRC87-501	Design Modification to VFO Transistor Switch, AN/TRC-87 (ECP-1)	2 May 1966

Table 3. Cross Reference Index (cont)

COMMON NAME	NOMENCLATURE (MOTOROLA PART NO.)	PAGE NO.
Final Amplifier (Automatic Transmitter)	01-32224B01	20
Final Amplifier (Manual Transmitter)	01-32224B02	19
Fine Tune I-f Amplifier	01-38682A01	39
First I-f Amplifier	01-38583A01	37
First Modulator Amplifier	01-38563A01	23
Hf Vfo (Receiver)	01-31816B02	35
Hf Crystal Oscillator (Receiver)	01-31825B02	36
Hf Vfo (Transmitter)	01-31816B01	12
Hf Crystal Oscillator (Transmitter)	01-31825B01	13
High Voltage Power Supply	01-31837B01	5
Lf Crystal Oscillator	01-31676B01	16
Lf Sweep Oscillator	01-31698B01	17
Low Voltage Chassis	01-31836B01	3
Mf Amplifier	01-31689B01	15
Mf Crystal Oscillator	01-31688B01	14
Modulator Chassis	01-38562A01	26
Receiver Drawer (Automatic)	01-31844B01	30
Receiver Drawer (Manual)	01-31838B01	28
Receiver Power Supply	01-38579A01	44
Remote Control Unit	Control, Radio Set Group C-6088/ TRC-87	45
Weapons Control Box	Control, Radio Set Group C-6089/ TRC-87	46
Rf Oscillator Drawer (Automatic Transmitter)	01-31842B01	10

Table 3. Cross Reference Index (cont)

COMMON NAME	NOMENCLATURE (MOTOROLA PART NO.)	PAGE NO.
Rf Oscillator Drawer (Manual Transmitter)	01-31834B01	9
Rf Section (Automatic Receiver)	01-38603A01	34
Rf Section (Manual Receiver)	01-38585A01	33
Second I-f Amplifier	01-38584A01	38
Second Modulator Amplifier	01-38564A01	24
Servo Amplifier	01-38598A01	27
Shelter	01-38604A01	47
Terminal Box (upper signal junction box)	J-741/M	49
Terminal Box (lower signal junction box) Modified	J-741/M (Modified)	49
Sidetone Monitor and Modulator Driver	01-38565A01	25
Transmitter Drawer (Automatic)	01-31842B01	8
Transmitter Drawer (Manual)	01-31832B01	7
Transmitter Power Supply Drawer	01-31835B01	1
Vswr and Power Monitor	01-38569A01	22
+300V Regulator	01-38575A01	6
+18V Regulator	01-38572A01	4
10-Watt Driver	01-38566A01	18

NOTE

MODULE TEST SET. Figures 3, 5, 6, and 40 are power supply schematics which are also used in the module test set (Radio Test Set AN/TRM-14). These schematics are marked with plug destinations to cover both applications in order to make dual use of the same diagrams.

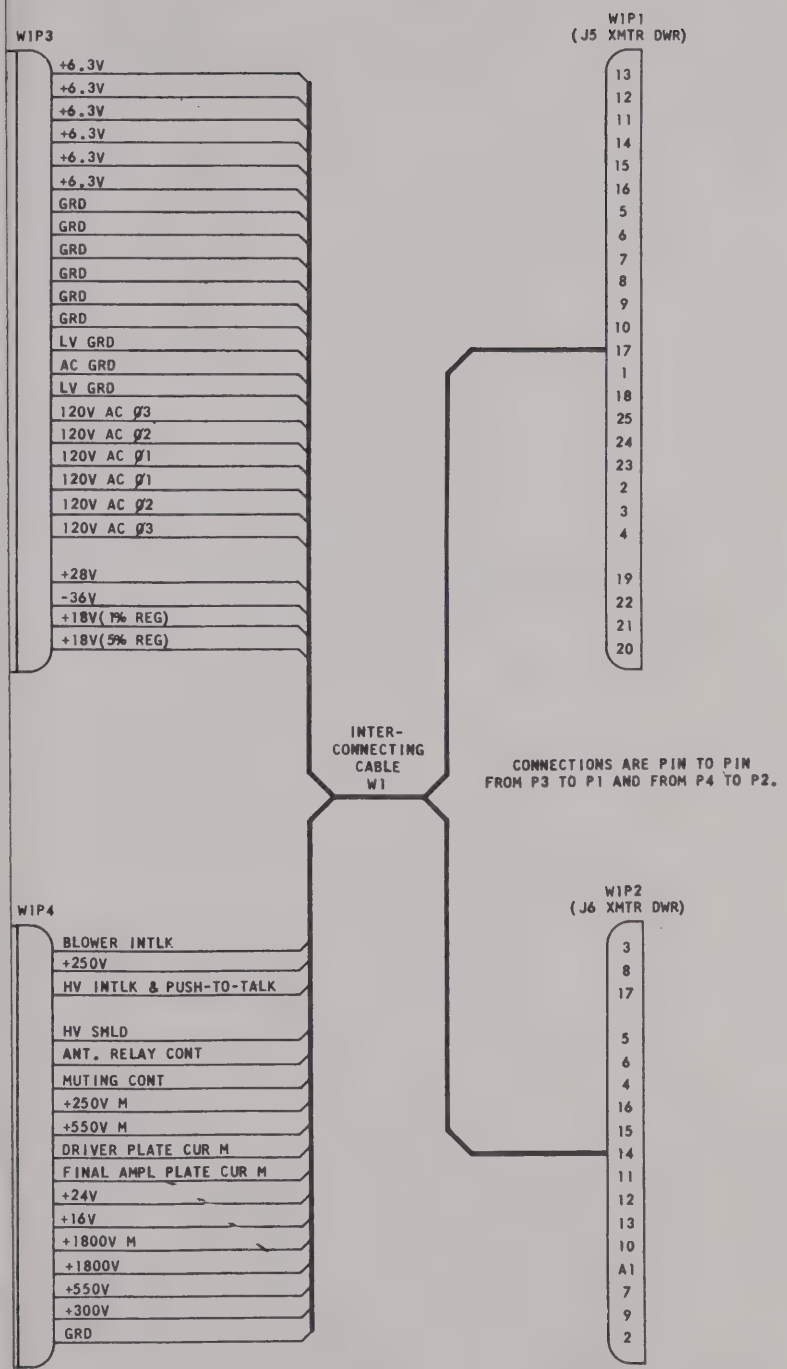

Figure 1. Transmitter Power Supply Drawer, Schematic Diagram

Table 3. Cross Reference Index (cont)

COMMON NAME	NOMENCLATURE (MOTOROLA PART NO.)	PAGE NO.
Rf Oscillator Drawer (Manual Transmitter)	01-31834B01	9
Rf Section (Automatic Receiver)	01-38603A01	34
Rf Section (Manual Receiver)	01-38585A01	33
Second I-f Amplifier	01-38584A01	38
Second Modulator Amplifier	01-38564A01	24
Servo Amplifier	01-38598A01	27
Shelter	01-38604A01	47
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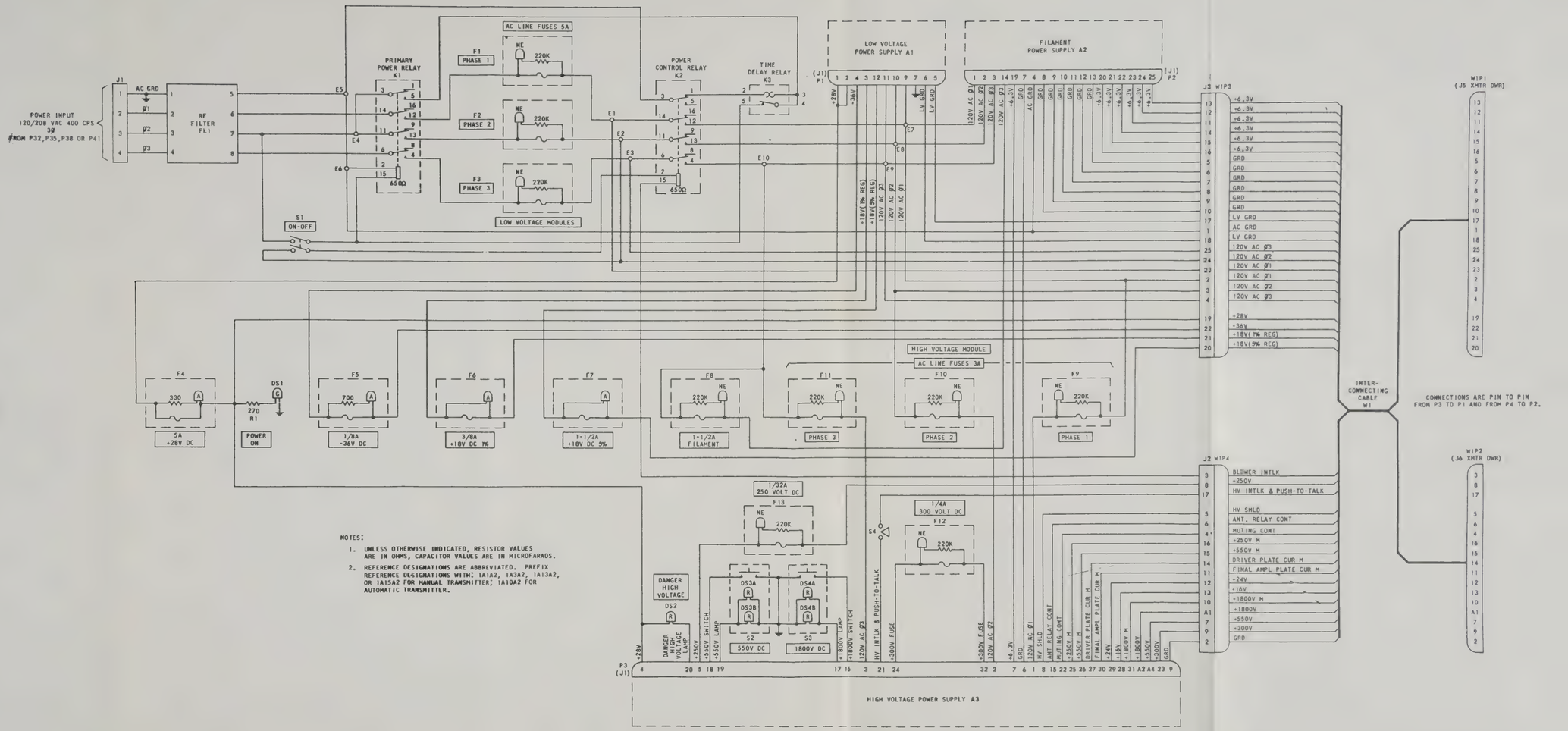
Terminal Box (lower signal junction box) Modified	J-741/M (Modified)	49
Sidetone Monitor and Modulator Driver	01-38565A01	25
Transmitter Drawer (Automatic)	01-31842B01	8
Transmitter Drawer (Manual)	01-31832B01	7
Transmitter Power Supply Drawer	01-31835B01	1
Vswr and Power Monitor	01-38569A01	22
+300V Regulator	01-38575A01	6
+18V Regulator	01-38572A01	4
10-Watt Driver	01-38566A01	18

NOTE

MODULE TEST SET. Figures 3, 5, 6, and 40 are power supply schematics which are also used in the module test set (Radio Test Set AN/TRM-14). These schematics are marked with plug destinations to cover both applications in order to make dual use of the same diagrams.



NOTES:

1. UNLESS OTHERWISE INDICATED, RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH: 1A1A2, 1A3A2, 1A13A2, OR 1A15A2 FOR MANUAL TRANSMITTER; 1A10A2 FOR AUTOMATIC TRANSMITTER.

Figure 1. Transmitter Power Supply Drawer, Schematic Diagram

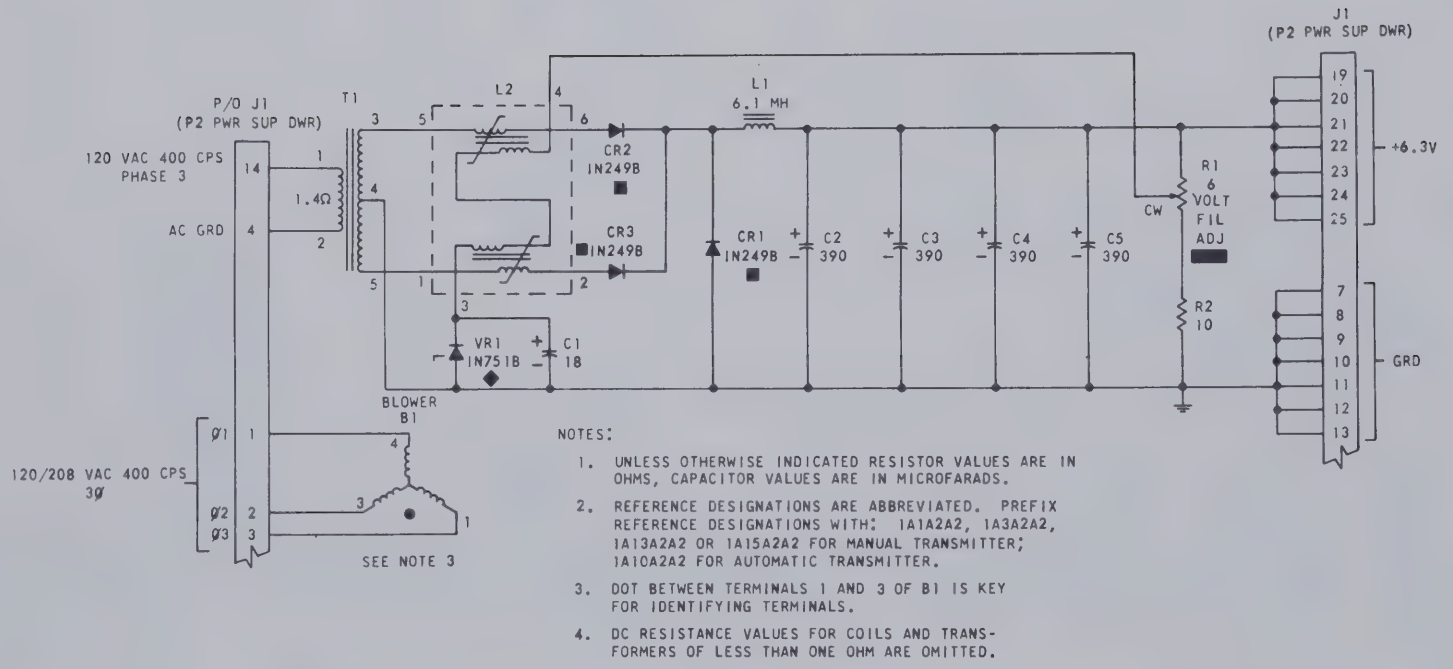


Figure 2. Transmitter Power Supply, Filament Supply, Schematic Diagram

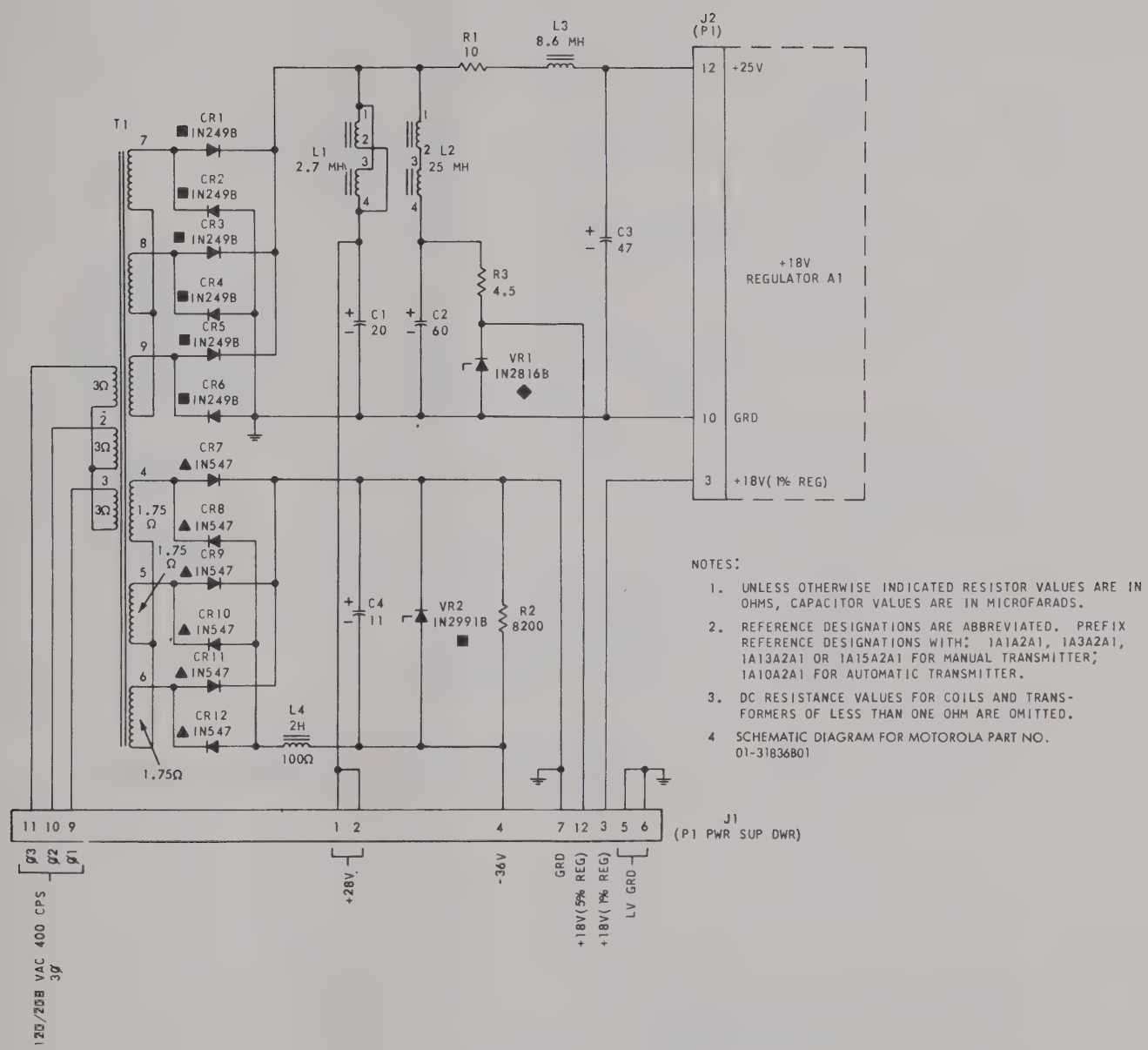
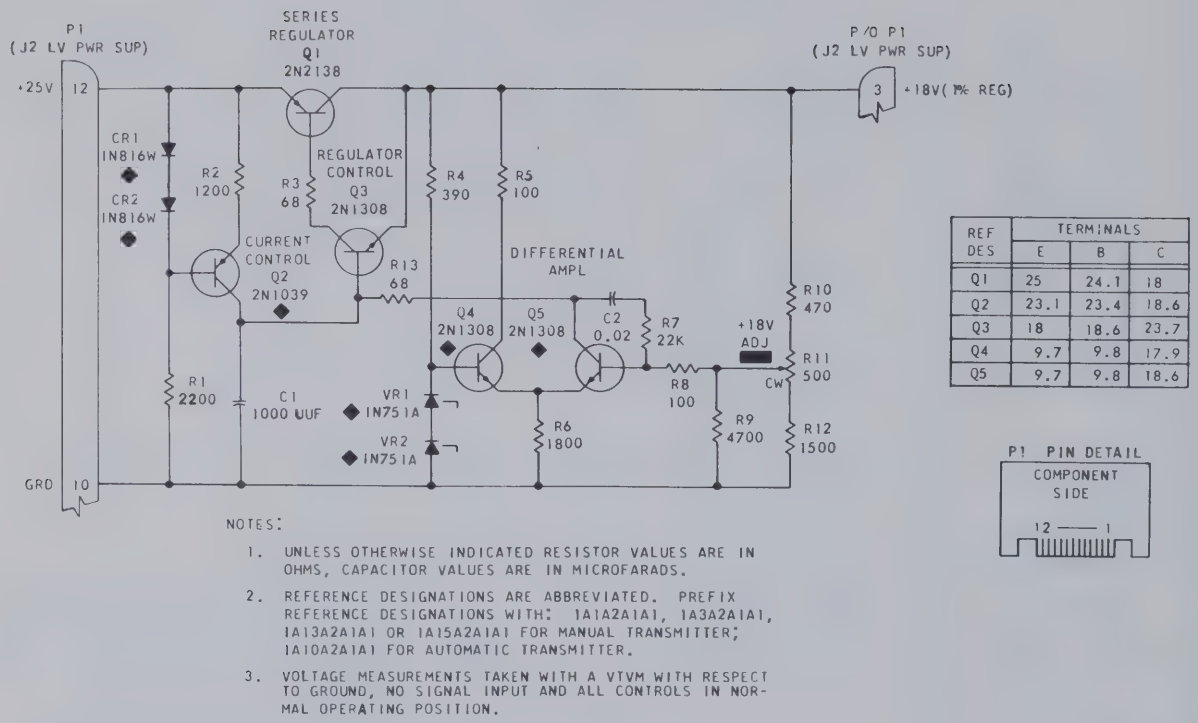


Figure 3. Transmitter Power Supply, Low Voltage Power Supply, Schematic Diagram

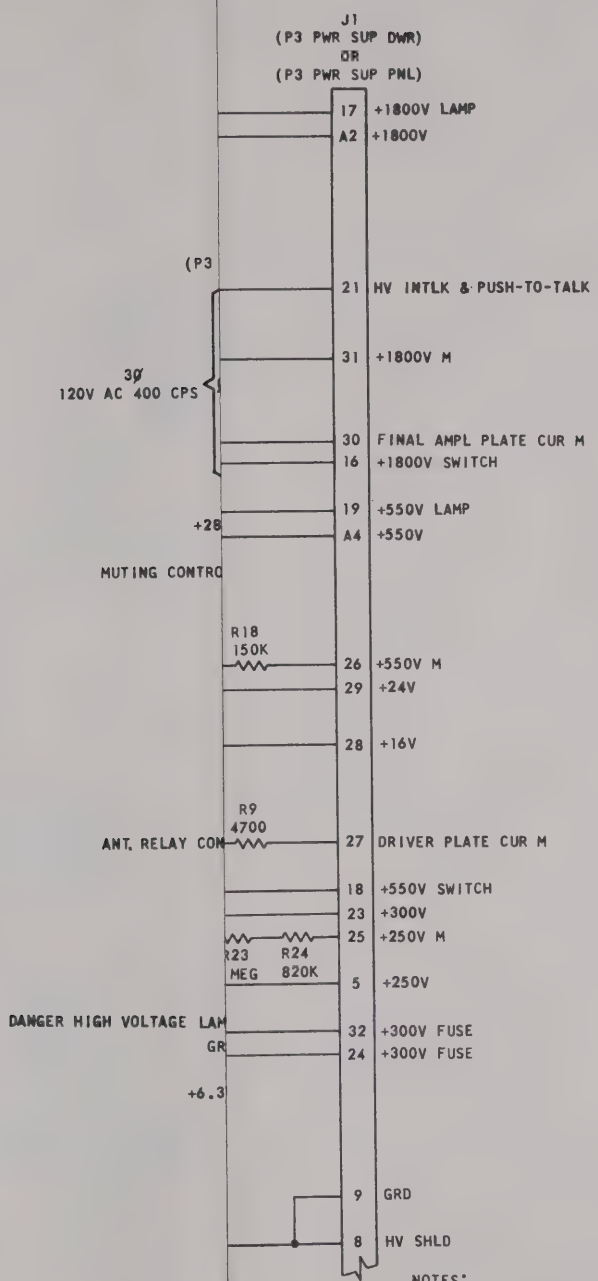


REF DES	TERMINALS		
	E	B	C
Q1	25	24.1	18
Q2	23.1	23.4	18.6
Q3	18	18.6	23.7
Q4	9.7	9.8	17.9
Q5	9.7	9.8	18.6

NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH: 1A1A2A1A1, 1A3A2A1A1, 1A13A2A1A1 OR 1A15A2A1A1 FOR MANUAL TRANSMITTER; 1A10A2A1A1 FOR AUTOMATIC TRANSMITTER.
3. VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT AND ALL CONTROLS IN NORMAL OPERATING POSITION.

Figure 4. Transmitter Power Supply, +18-Volt Regulator, Schematic Diagram



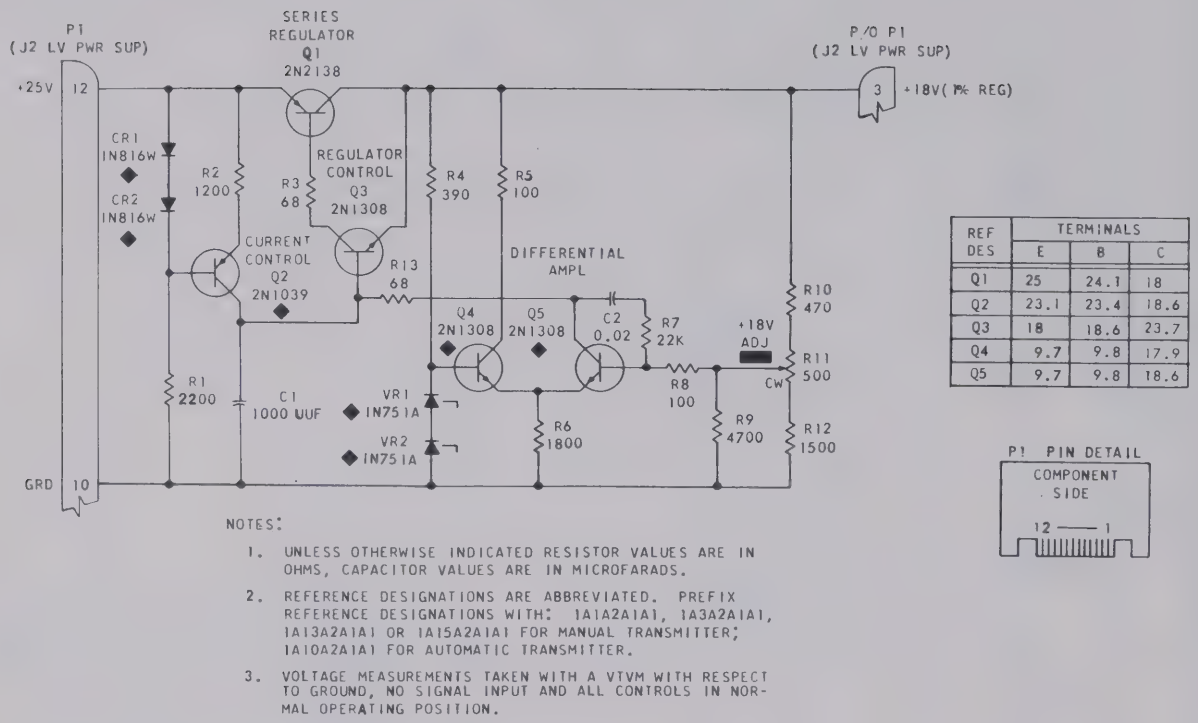
T1
DC RESISTANCES

PINS	RESISTANCE (OHMS)
1-2	1.2
2-3	1.2
3-1	1.2
4-5	28
5-6	28
6-4	28
7-8	78
8-9	78
9-7	78
10-11	34
11-12	34
12-10	34

NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH: 1A1A2A3, 1A3A2A3, 1A13A2A3 OR 1A15A2A3 FOR MANUAL TRANSMITTER; 1A10A2A3 FOR AUTOMATIC TRANSMITTER; 2A3 FOR MODULE TEST SET.
3. RELAYS K4 AND K5 ARE LATCHING RELAYS SHOWN IN NORMAL OPERATING CONDITION. OPERATING COILS PUSH CONTACTS WHEN ENERGIZED.
4. J1 CONNECTS TO PWR SUP DWR FOR AN/TRC-87 OR PWR SUP PNL FOR MODULE TEST SET.
5. SCHEMATIC DIAGRAM FOR MOTOROLA PART NO. 01-38574A01.

Figure 5. Transmitter Power Supply, High Voltage Power Supply, Schematic Diagram

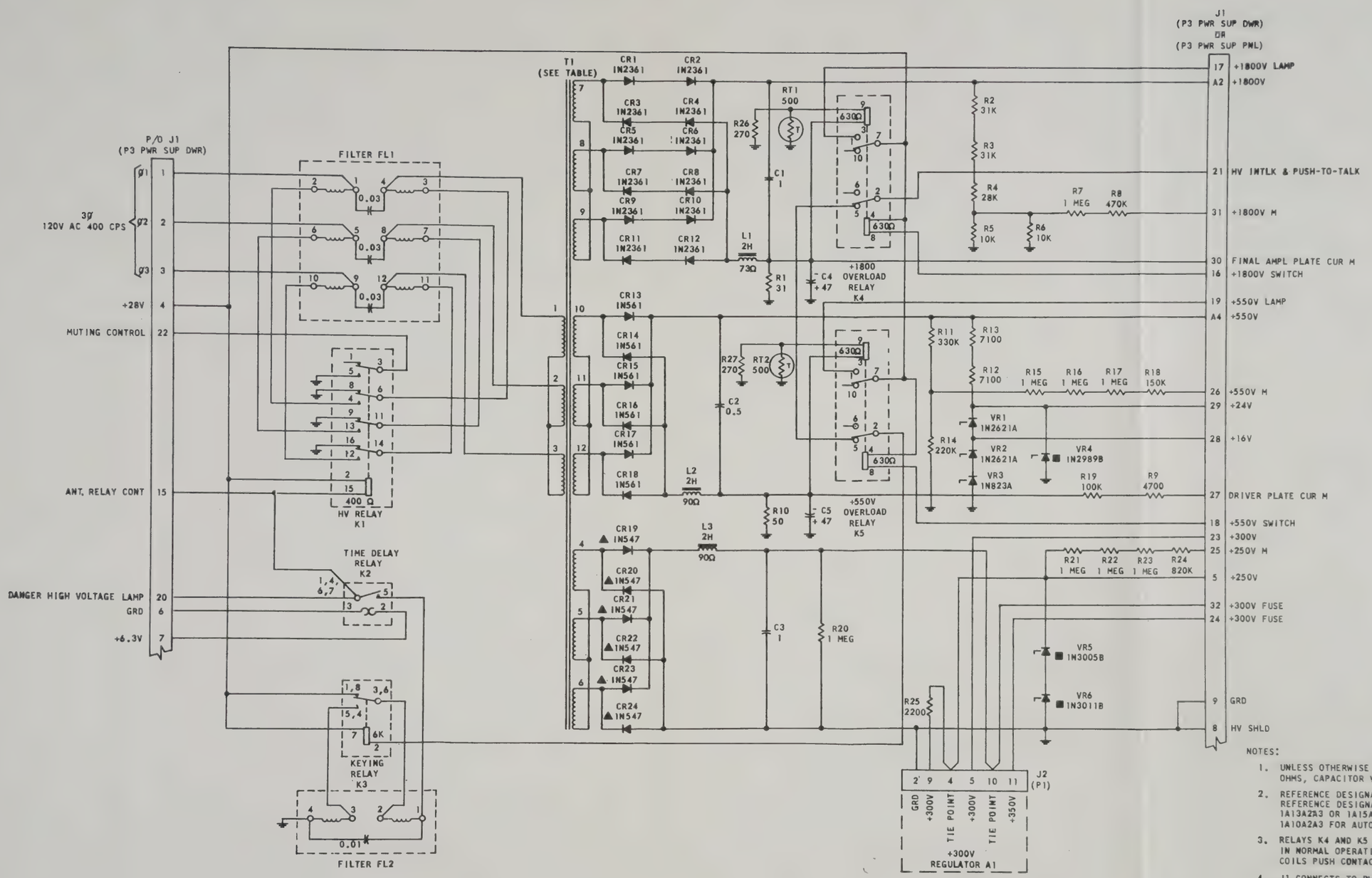


REF DES	TERMINALS		
	E	B	C
Q1	25	24.1	18
Q2	23.1	23.4	18.6
Q3	18	18.6	23.7
Q4	9.7	9.8	17.9
Q5	9.7	9.8	18.6

NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH: 1A1A2A1A1, 1A3A2A1A1, 1A13A2A1A1 OR 1A15A2A1A1 FOR MANUAL TRANSMITTER; 1A10A2A1A1 FOR AUTOMATIC TRANSMITTER.
3. VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT AND ALL CONTROLS IN NORMAL OPERATING POSITION.

Figure 4. Transmitter Power Supply, +18-Volt Regulator, Schematic Diagram



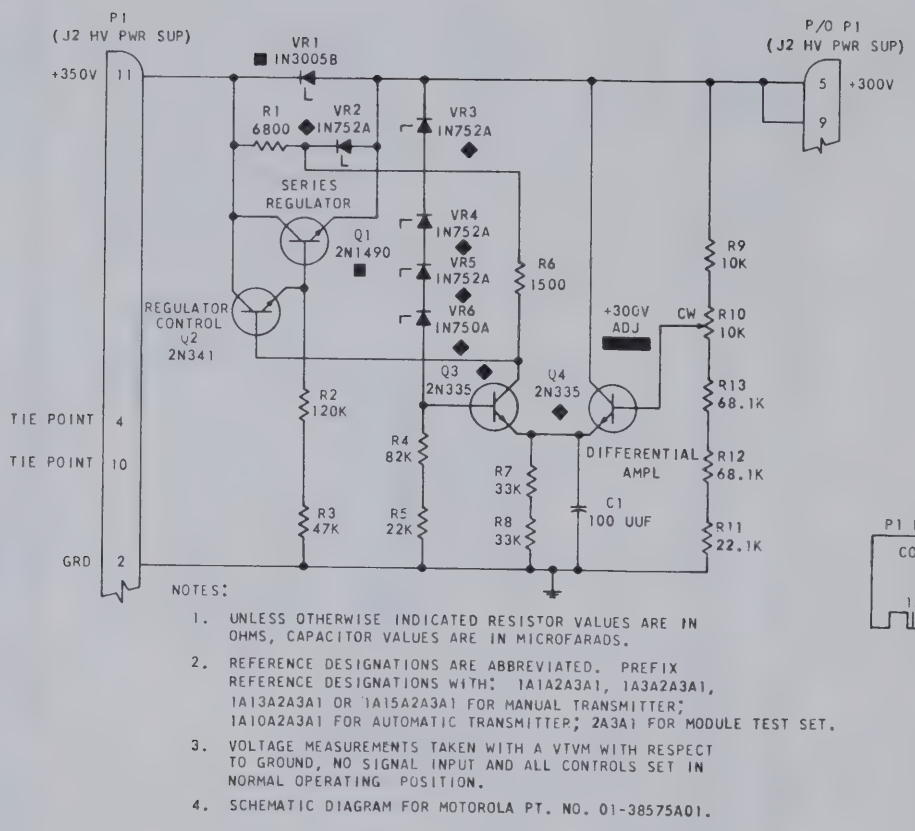
T1
DC RESISTANCES

PINS	RESISTANCE (OHMS)
1-2	1.2
2-3	1.2
3-1	1.2
4-5	28
5-6	28
6-4	28
7-8	78
8-9	78
9-7	78
10-11	34
11-12	34
12-10	34

NOTES:

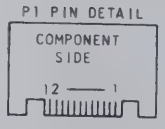
1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH: 1A1A2A3, 1A3A2A3, 1A13A2A3 OR 1A15A2A3 FOR MANUAL TRANSMITTER; 1A10A2A3 FOR AUTOMATIC TRANSMITTER; 2A3 FOR MODULE TEST SET.
3. RELAYS K4 AND K5 ARE LATCHING RELAYS SHOWN IN NORMAL OPERATING CONDITION. OPERATING COILS PUSH CONTACTS WHEN ENERGIZED.
4. J1 CONNECTS TO PWR SUP DWR FOR AN/TRC-87 OR PWR SUP PNL FOR MODULE TEST SET.
5. SCHEMATIC DIAGRAM FOR MOTOROLA PART NO. 01-38574A01.

Figure 5. Transmitter Power Supply, High Voltage Power Supply, Schematic Diagram



TRANSISTOR VOLTAGES

REF DES	TERMINAL		
	E	B	C
Q1	300	300.2	350
Q2	300.2	300.6	350
Q3	278.0	279.0	300.6
Q4	278.0	279.0	300



NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH: 1A1A2A3A1, 1A3A2A3A1, 1A13A2A3A1 OR 1A15A2A3A1 FOR MANUAL TRANSMITTER; 1A10A2A3A1 FOR AUTOMATIC TRANSMITTER; 2A3A1 FOR MODULE TEST SET.
3. VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT AND ALL CONTROLS SET IN NORMAL OPERATING POSITION.
4. SCHEMATIC DIAGRAM FOR MOTOROLA PT. NO. 01-38575A01.

Figure 6. Transmitter Power Supply, +300-Volt Regulator, Schematic Diagram

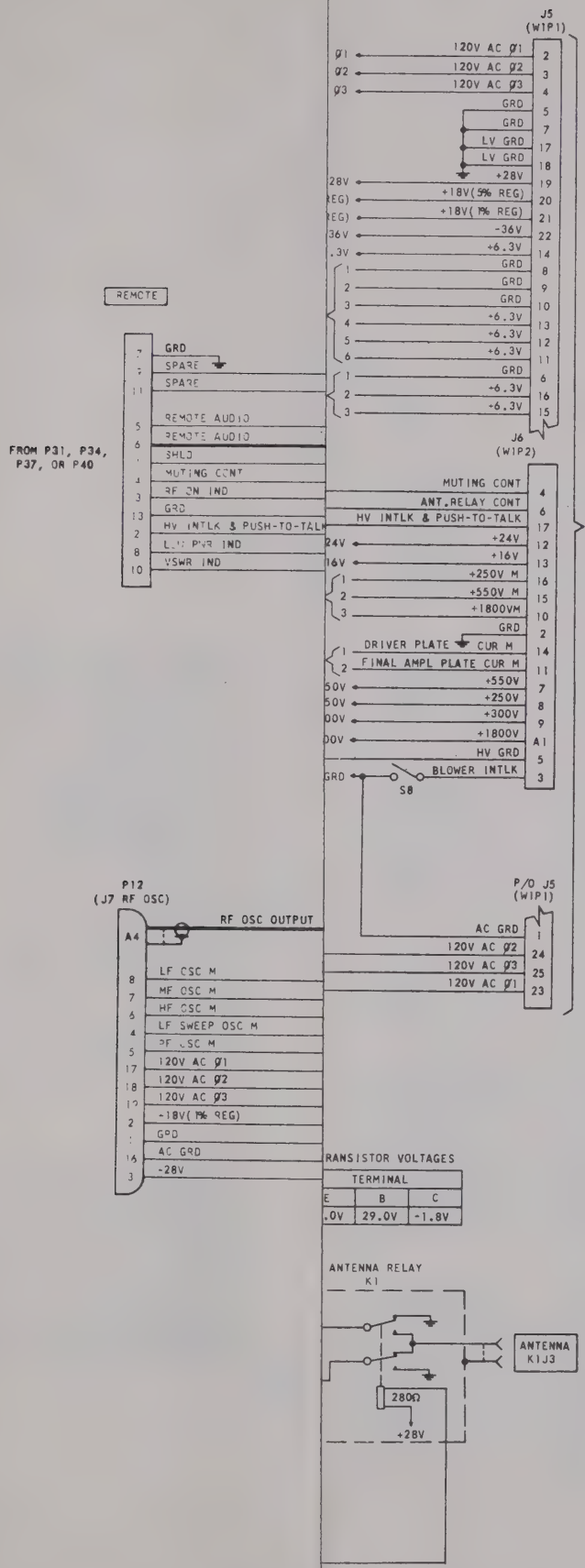


TABLE 1. METER SELECTOR SWITCH POSITIONS

POSITION	LABELED
1	RF POWER OUTPUT
2	VSWR CAL
3	VSWR
4	PA PL CUR
5	PA GRID CUR
6	DR PL CUR
7	DR GRID CUR
8	MCO AMPL GRID CUR
9	2ND DBLR GRID CUR
10	1ST DBLR GRID CUR
11	RFO OUPT
12	SW OSC
13	HFO
14	MFO
15	LFO
16	6.3V
17	18V ± 5%
18	18V ± 1%
19	24V
20	28V
21	-36V
22	250V
23	550V
24	1800V
W	WIPER

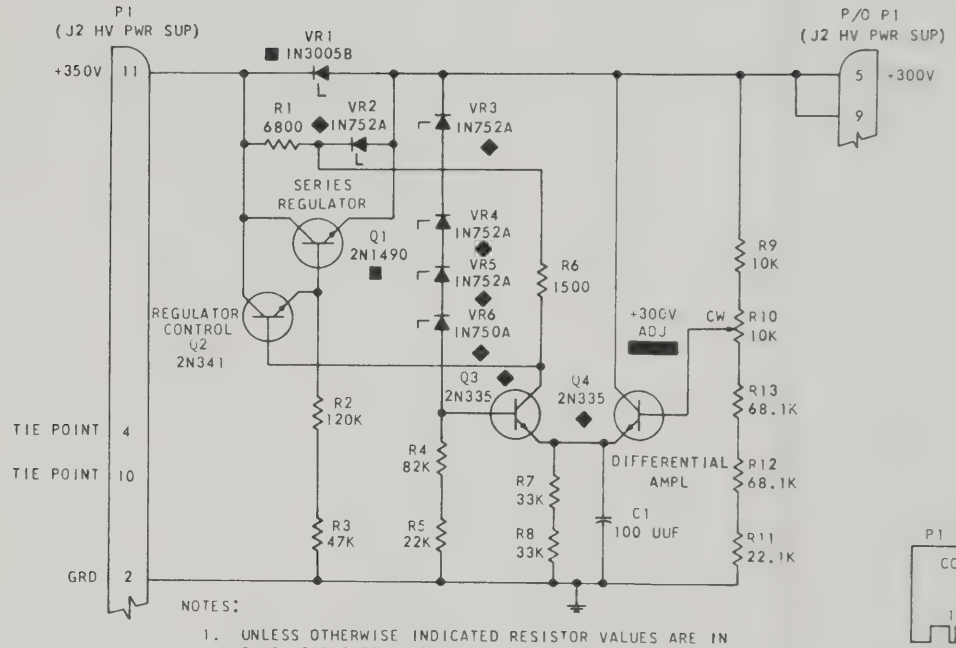
TRANSISTOR VOLTAGES

TERMINAL		
E	B	C
.0V	29.0V	-1.8V

NOTES:

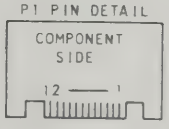
1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARDS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH 1A1A1, 1A3A1, 1A13A1, OR 1A15A1.
3. SWITCH S6A VIEWED FROM KNOB END, S6B VIEWED FROM OPPOSITE END.
4. DOT BETWEEN TERMINALS 1 AND 4 OF B1 IS KEY FOR IDENTIFYING TERMINALS.
5. METER SELECTOR SWITCH S6 SHOWN FULLY CCW (POSITION 1)
6. SCHEMATIC DIAGRAM FOR MOTOROLA PART NO. 01-31832B01.
7. VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT, AND ALL CONTROLS SET IN NORMAL OPERATING POSITION.

Figure 7. Manual Transmitter Drawer, Schematic Diagram



TRANSISTOR VOLTAGES

REF DES	TERMINAL		
	E	B	C
Q1	300	300.2	350
Q2	300.2	300.6	350
Q3	278.0	279.0	300.6
Q4	278.0	279.0	300



NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH: 1A1A2A3A1, 1A3A2A3A1, 1A13A2A3A1 OR 1A15A2A3A1 FOR MANUAL TRANSMITTER; 1A10A2A3A1 FOR AUTOMATIC TRANSMITTER; 2A3A1 FOR MODULE TEST SET.
3. VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT AND ALL CONTROLS SET IN NORMAL OPERATING POSITION.
4. SCHEMATIC DIAGRAM FOR MOTOROLA PT. NO. 01-38575A01.

Figure 6. Transmitter Power Supply, +300-Volt Regulator, Schematic Diagram

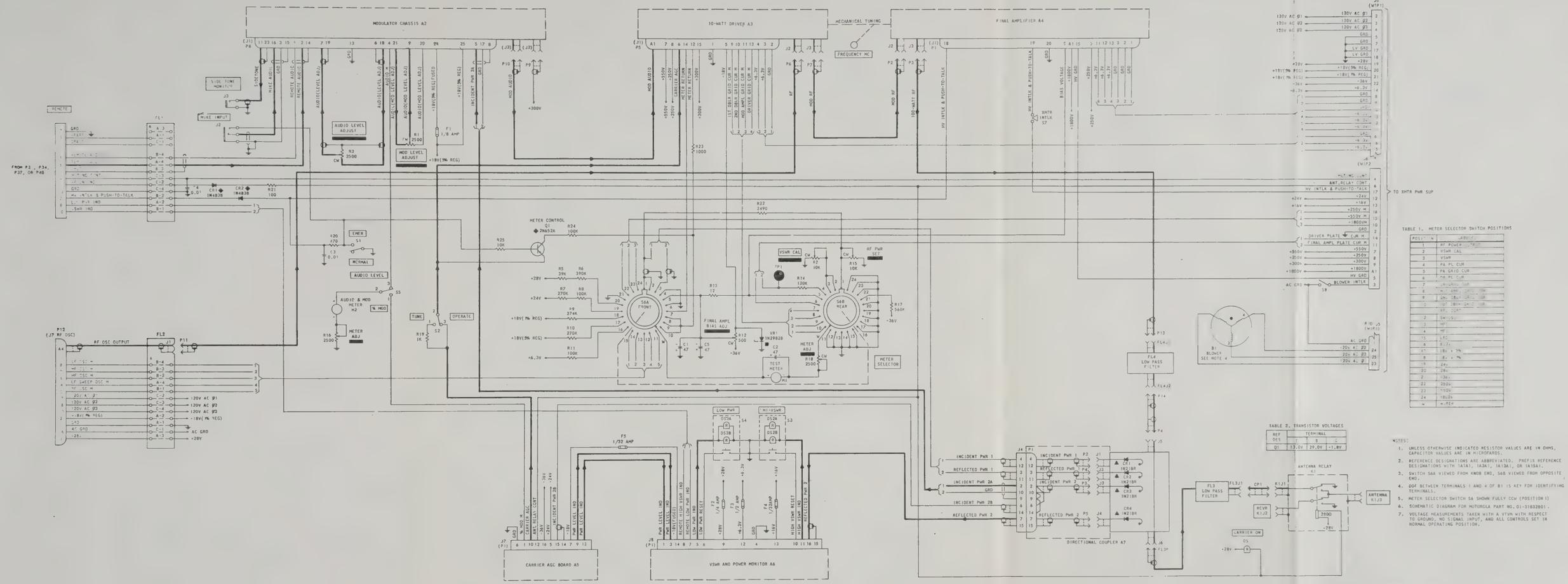


TABLE 1. METER SELECTOR SWITCH POSITIONS

POSITION	LABEL
1	RF POWER
2	VSWR CAL
3	VSWR
4	PA PL CUR
5	PA GRID CUR
6	PA MI CUR
7	[illegible]
8	[illegible]
9	[illegible]
10	[illegible]
11	[illegible]
12	[illegible]
2	[illegible]
3	[illegible]
4	[illegible]
15	[illegible]
16	[illegible]
17	[illegible]
18	[illegible]
19	[illegible]
20	[illegible]
21	[illegible]
22	[illegible]
23	[illegible]
24	[illegible]
∞	[illegible]

TABLE 2. TRANSISTOR VOLTAGES

REF DES	TERMINAL		
	E	B	C
Q1	13.0V	29.0V	-1.8V

NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARDS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED, PREFIX REFERENCE DESIGNATIONS WITH 1A1A1, 1A3A1, OR 1A15A1.
3. SWITCH S6A VIEWED FROM KNOB END, S6B VIEWED FROM OPPOSITE END.
4. DOT BETWEEN TERMINALS 1 AND 4 OF B1 IS KEY FOR IDENTIFYING TERMINALS.
5. METER SELECTOR SWITCH S6 SHOWN FULLY CCW (POSITION 1)
6. SCHEMATIC DIAGRAM FOR MOTOROLA PART NO. 01-31832801 .
7. VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT, AND ALL CONTROLS SET IN NORMAL OPERATING POSITION.

Figure 7. Manual Transmitter Drawer, Schematic Diagram

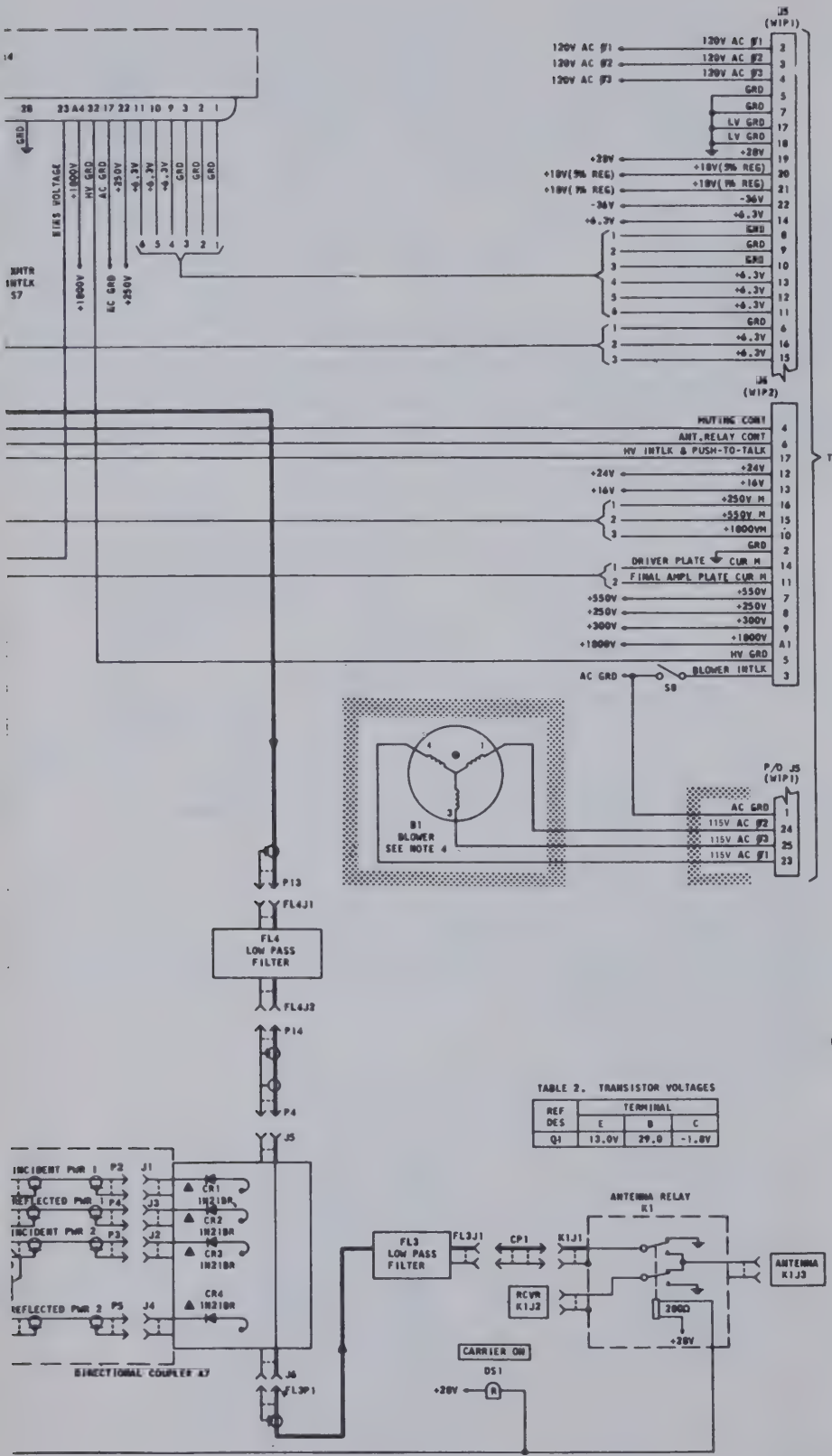


TABLE 1. METER SELECTOR SWITCH POSITIONS

POSITION	LABELED
1	RF POWER OUTPUT
2	VSWR CAL
3	VSWR
4	PA PL CUR
5	PA GRID CUR
6	DR PL CUR
7	DR GRID CUR
8	MCO AMPL GRID CUR
9	2ND DBLR GRID CUR
10	1ST DBLR GRID CUR
11	RFO OUPT
12	SW OSC
13	MFO
14	MFO
15	LFO
16	6.3V
17	18V ± 5%
18	18V ± 1%
19	24V
20	28V
21	-36V
22	250V
23	550V
24	1000V
W	WIPER

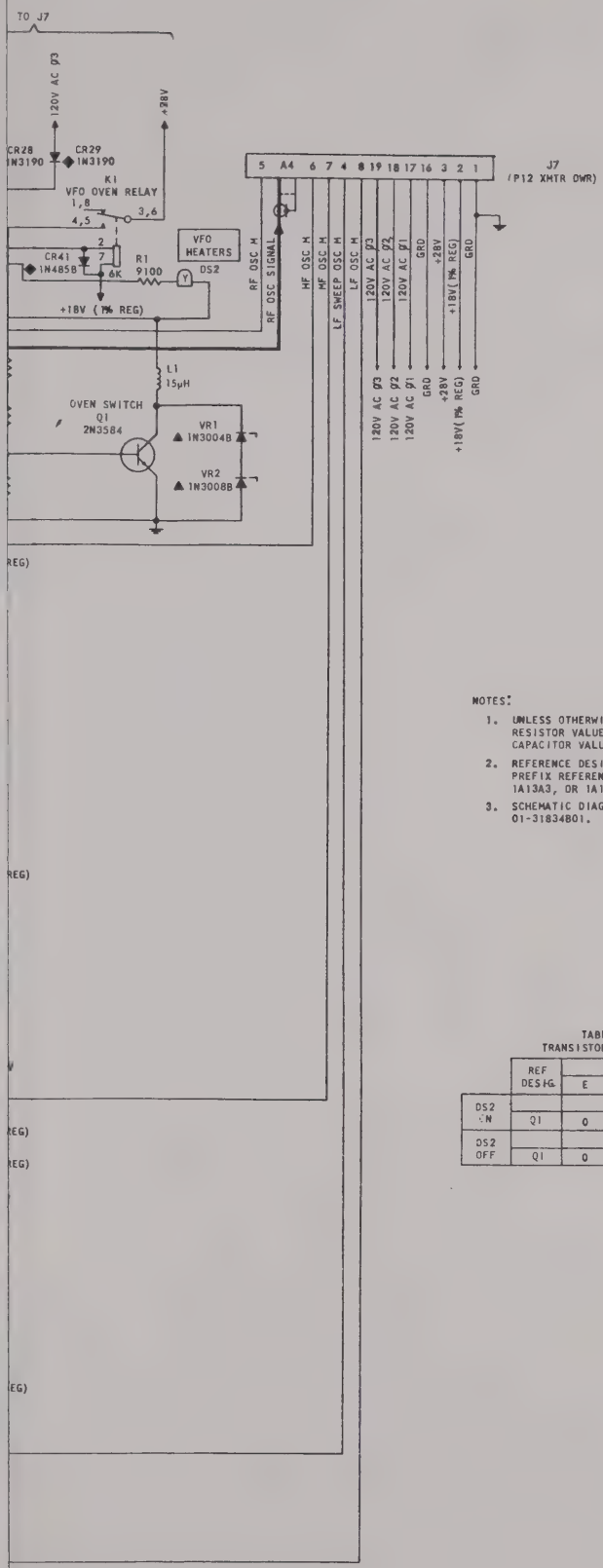
TABLE 2. TRANSISTOR VOLTAGES

REF DES	TERMINAL		
	E	B	C
Q1	13.0V	29.0	-1.0V

NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARDS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH 1A10A1.
3. SWITCH S6A VIEWED FROM KNOB END, S6B VIEWED FROM OPPOSITE END.
4. DOT BETWEEN TERMINALS 1 AND 4 OF B1 IS KEY FOR IDENTIFYING TERMINALS.
5. METER SELECTOR SWITCH S6 SHOWN FULLY CCW (POSITION 1)
6. SCHEMATIC DIAGRAM FOR MOTOROLA PART NO. 01-31042B01.
7. VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT, AND ALL CONTROLS SET IN NORMAL OPERATING POSITION.

Figure 8. Automatic Transmitter Drawer, Schematic Diagram



NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCES WITH 1A1A3, 1A3A3, 1A13A3, OR 1A15A3.
3. SCHEMATIC DIAGRAM FOR MOTOROLA PART NO. 01-31834B01.

TABLE 1.
TRANSISTOR VOLTAGES

	REF DESIG.	TERMINAL		
		E	B	C
DS2 ON	Q1	0	6	.9
DS2 OFF	Q1	0	0	160

Figure 9. Manual Transmitter Rf Oscillator Drawer, Schematic Diagram

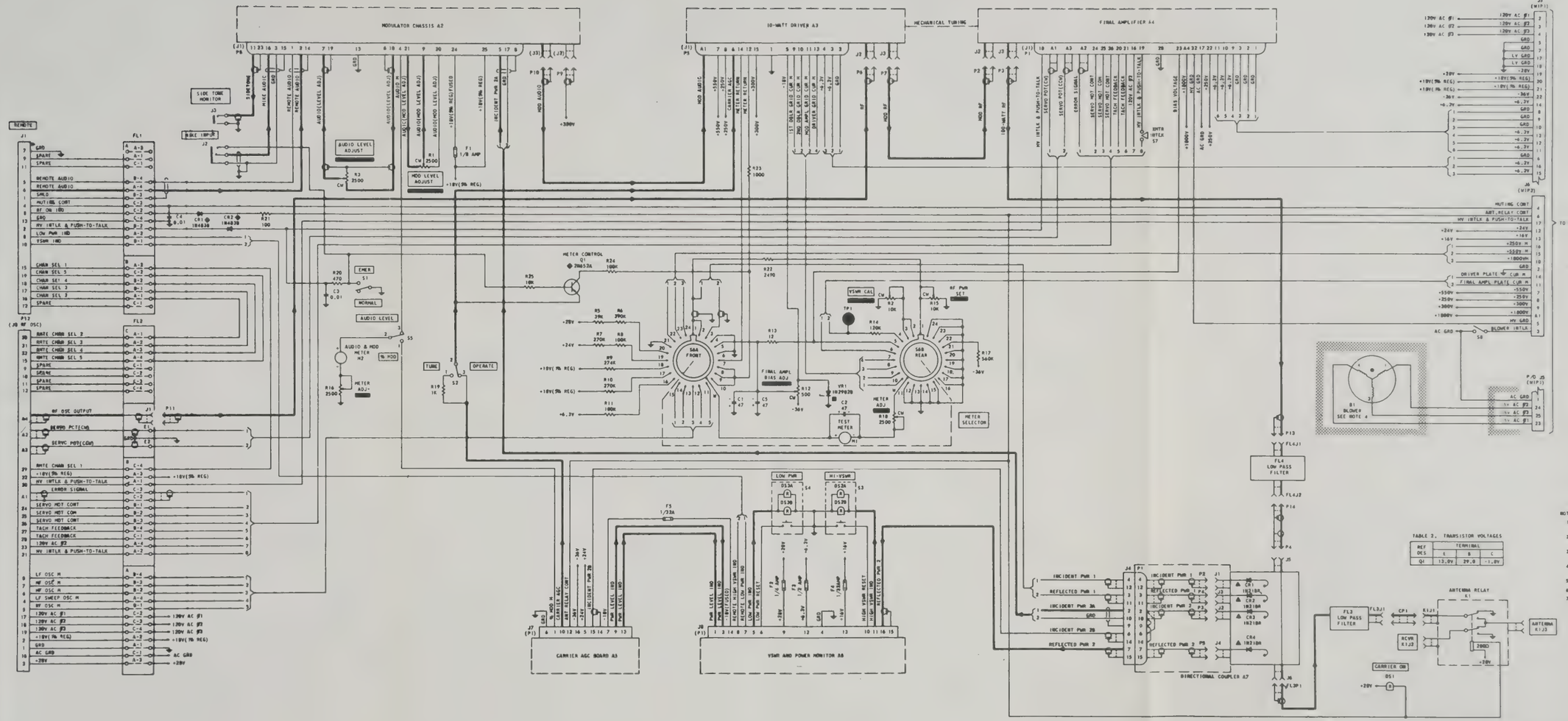


TABLE 1. METER SELECTOR SWITCH POSITIONS

POSITION	LABELED
1	RF POWER OUTPUT
2	VSWR CAL
3	VSWR
4	PA PL CUR
5	PA GRID CUR
6	DR PL CUR
7	DR GRID CUR
8	MLO AMPL GRID CUR
9	2ND DBLR GRID CUR
10	1ST DBLR GRID CUR
11	MFO OUPT
12	SW OSC
13	MFO
14	MFC
15	LFO
16	6.3V
17	18V ± 5%
18	18V ± 1%
19	24V
20	28V
21	-36V
22	250V
23	550V
24	1800V
W	WIPER

TABLE 2. TRANSISTOR VOLTAGES

REF DES	TERMINAL E	B	C
Q1	13.0V	29.0	-1.0V

NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARDS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH 1A10A1.
3. SWITCH S6A VIEWED FROM KNOB END, S6B VIEWED FROM OPPOSITE END.
4. ROT BETWEEN TERMINALS 1 AND 4 OF B1 IS KEY FOR IDENTIFYING TERMINALS.
5. METER SELECTOR SWITCH S6 SHOWN FULLY CCW (POSITION 1)
6. SCHEMATIC DIAGRAM F/A MOTOROLA PART NO. 01-31842901.
7. VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT, AND ALL CONTROLS SET IN NORMAL OPERATING POSITION.

Figure 8. Automatic Transmitter Drawer, Schematic Diagram

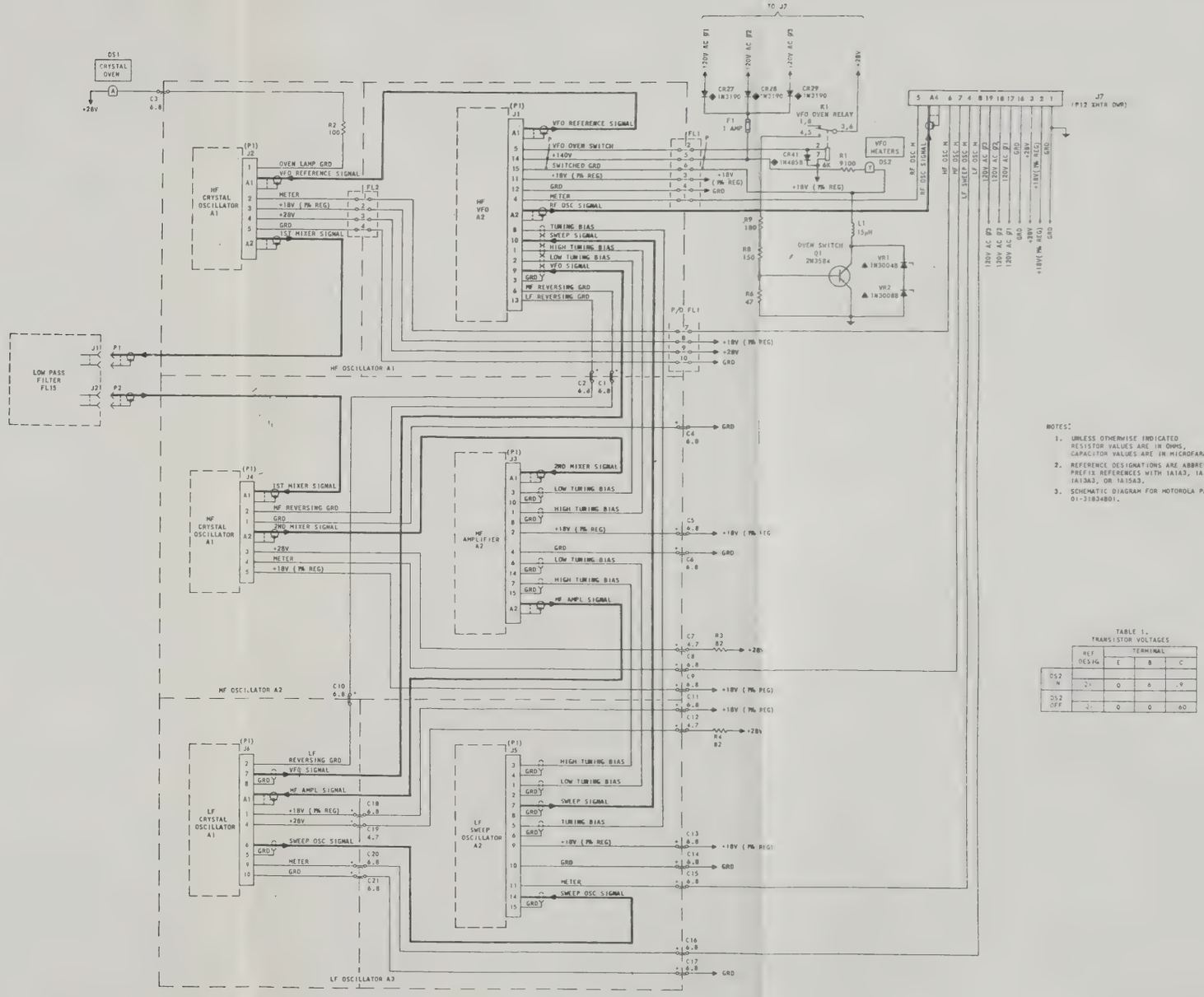


Figure 9. Manual Transmitter Rf Oscillator Drawer, Schematic Diagram

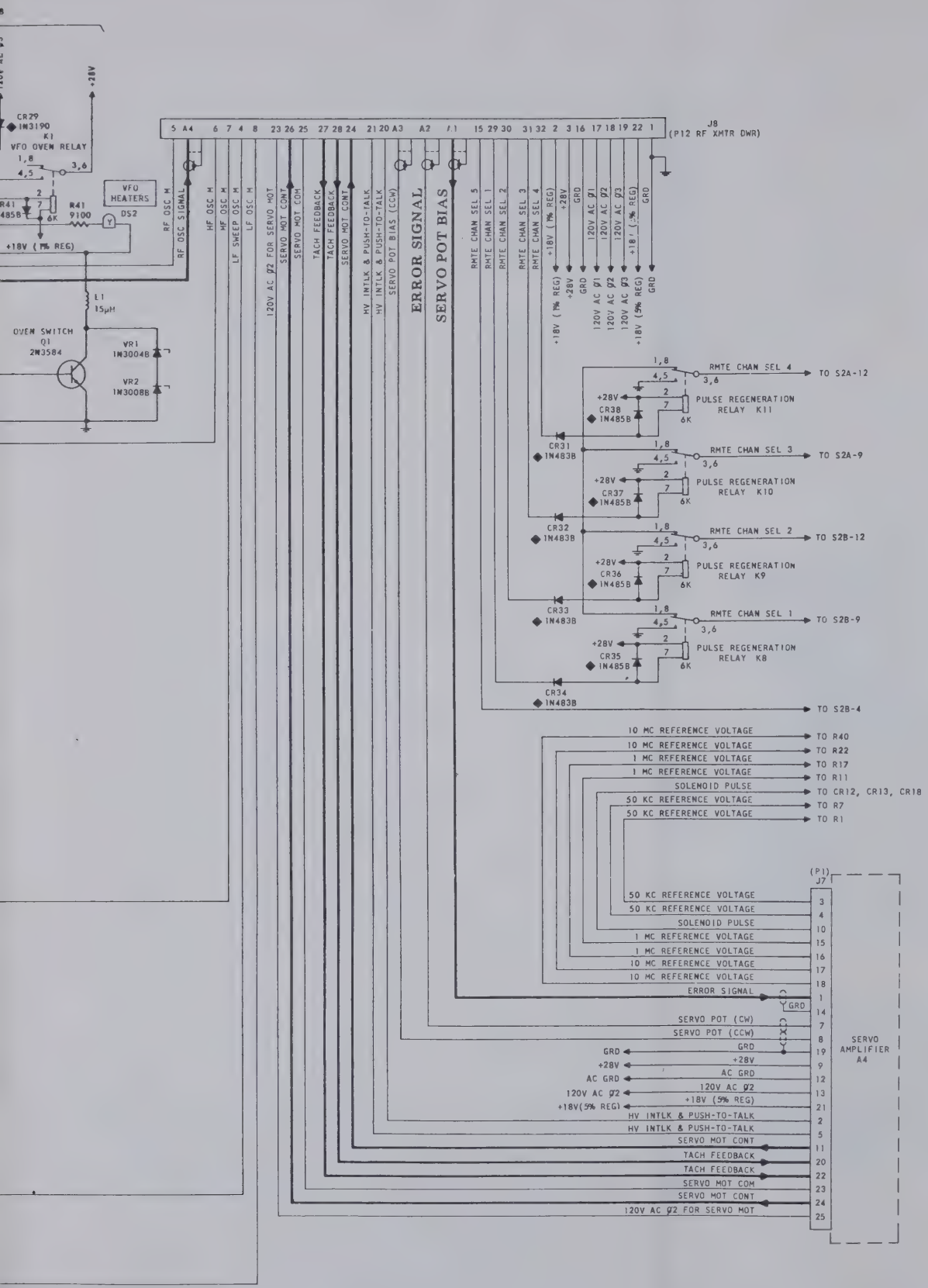


Figure 10. Automatic Transmitter Rf Oscillator Drawer, Schematic Diagram (Sheet 1 of 2)

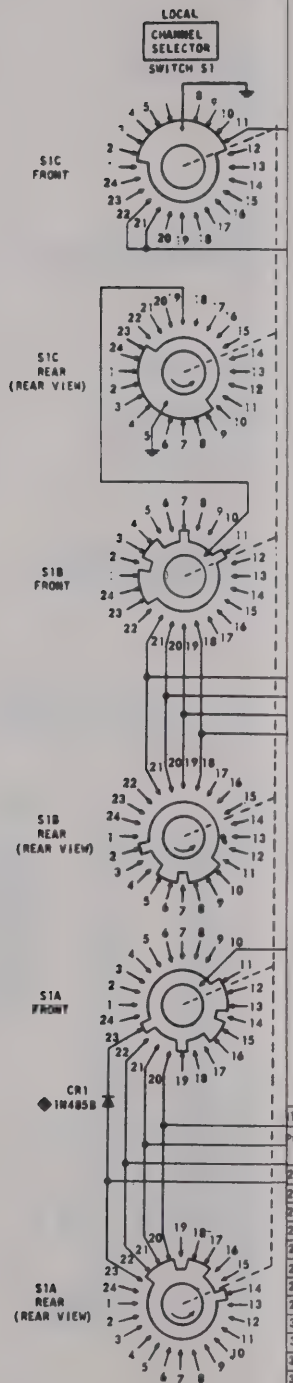


TABLE 2

CHANNEL PRESELECTOR ASSEMBLY S1, AND K4, PIN NO. VS. CHANNEL NO.

PIN	CHANNEL
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	
12	
13	11
14	12
15	13
16	14
17	15
18	16
19	17
20	18
21	19
22	20
23	M

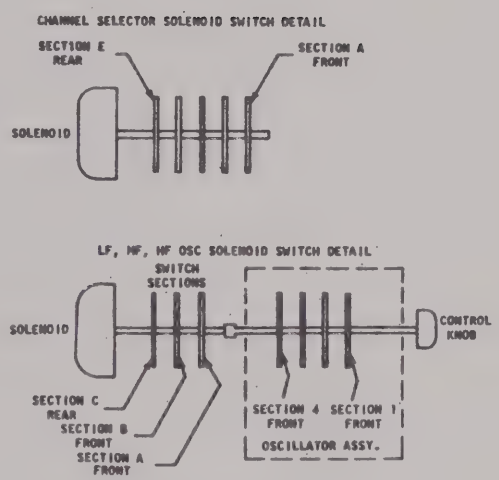
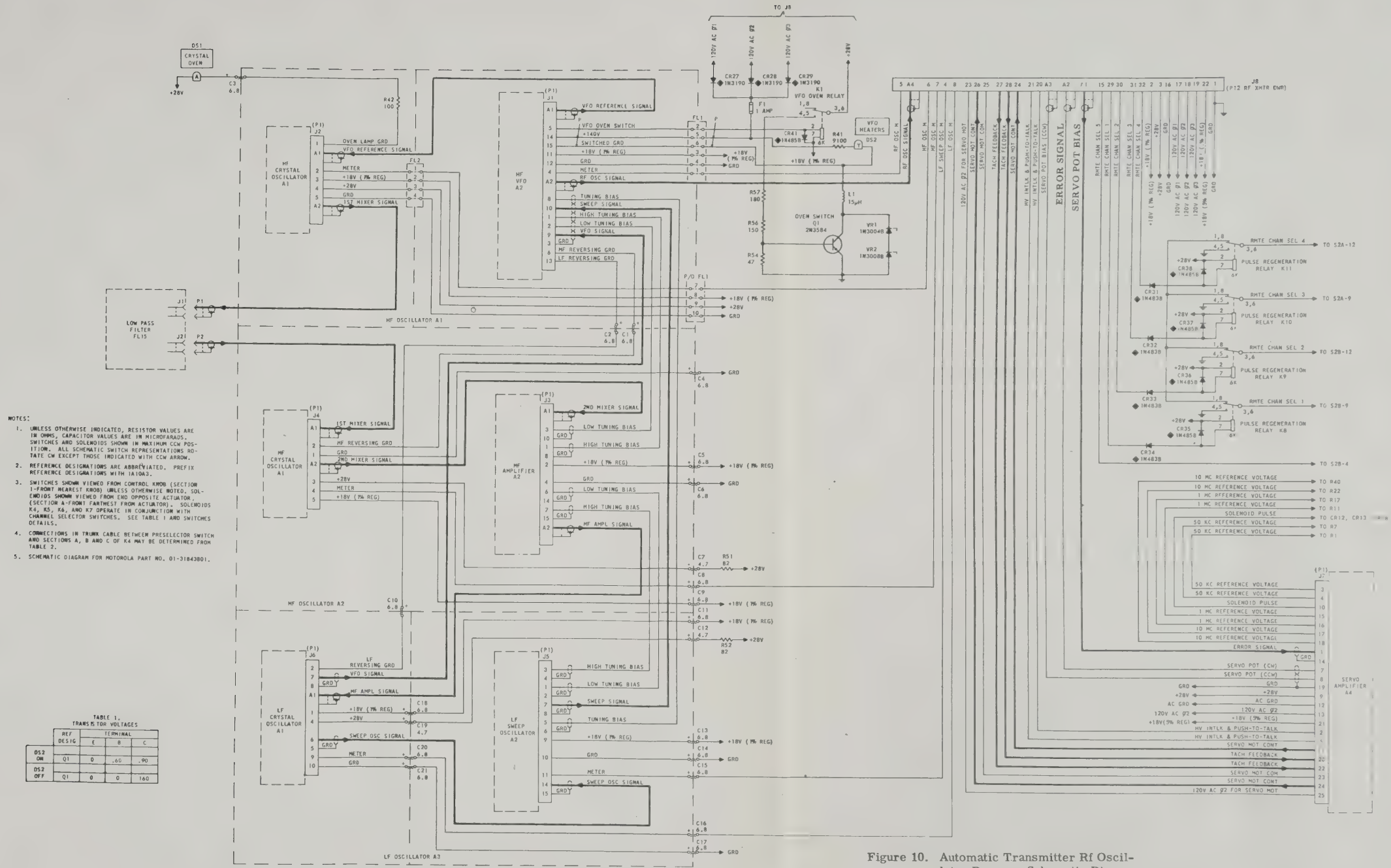


TABLE 1. FREQUENCIES CORRESPONDING TO POSITIONS OF SOLENOIDS K5, K4, AND K7

TROL SOLENOIDS K5			1 MC CONTROL SOLENOID K6			50KC CONTROL SOLENOID K7		
PONDING LABELING	FREQUENCY MC XMTR	FREQUENCY MC RCVR	SOLENOID POSITION	CORRESPONDING SWITCH LABELING	FREQUENCY MC	SOLENOID POSITION	CORRESPONDING SWITCH LABELING	FREQUENCY KC
22	220	176	1	0	0	1	.00	0
23	230	186	2	1	1	2	.05	50
24	240	196	3	2	2	3	.10	100
25	250	206	4	3	3	4	.15	150
26	260	216	5	4	4	5	.20	200
27	270	226	6	5	5	6	.25	250
28	280	236	7	6	6	7	.30	300
29	290	246	8	7	7	8	.35	350
30	300	256	9	8	8	9	.40	400
31	310	266	10	9	9	10	.45	450
32	320	276				11	.50	500
33	330	286				12	.55	550
34	340	296				13	.60	600
35	350	306				14	.65	650
36	360	316				15	.70	700
37	370	326				16	.75	750
38	380	336				17	.80	800
39	390	346				18	.85	850
						19	.90	900
						20	.95	950

Figure 10. Automatic Transmitter Rf Oscillator Drawer, Schematic Diagram (Sheet 2 of 2)



NOTES:

1. UNLESS OTHERWISE INDICATED, RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS. SWITCHES AND SOLENOIDS SHOWN IN MAXIMUM CCW POSITION. ALL SCHEMATIC SWITCH REPRESENTATIONS ROTATE CW EXCEPT THOSE INDICATED WITH CCW ARROW.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH 1A10A3.
3. SWITCHES SHOWN VIEWED FROM CONTROL KNOB (SECTION 1-FRONT NEAREST KNOB) UNLESS OTHERWISE NOTED. SOLENOIDS SHOWN VIEWED FROM END OPPOSITE ACTUATOR. (SECTION A-FRONT FARTHEST FROM ACTUATOR). SOLENOIDS K4, K5, K6, AND K7 OPERATE IN CONJUNCTION WITH CHANNEL SELECTOR SWITCHES. SEE TABLE 1 AND SWITCHES DETAILS.
4. CONNECTIONS IN TRUNK CABLE BETWEEN PRESELECTOR SWITCH AND SECTIONS A, B AND C OF K4 MAY BE DETERMINED FROM TABLE 2.
5. SCHEMATIC DIAGRAM FOR MOTOROLA PART NO. 01-31843B01.

TABLE 1.
TRANSISTOR VOLTAGES

	REF DESIG	TERMINAL E	B	C
DS2 ON	Q1	0	.60	.90
DS2 OFF	Q1	0	0	160

Figure 10. Automatic Transmitter Rf Oscillator Drawer, Schematic Diagram (Sheet 1 of 2)

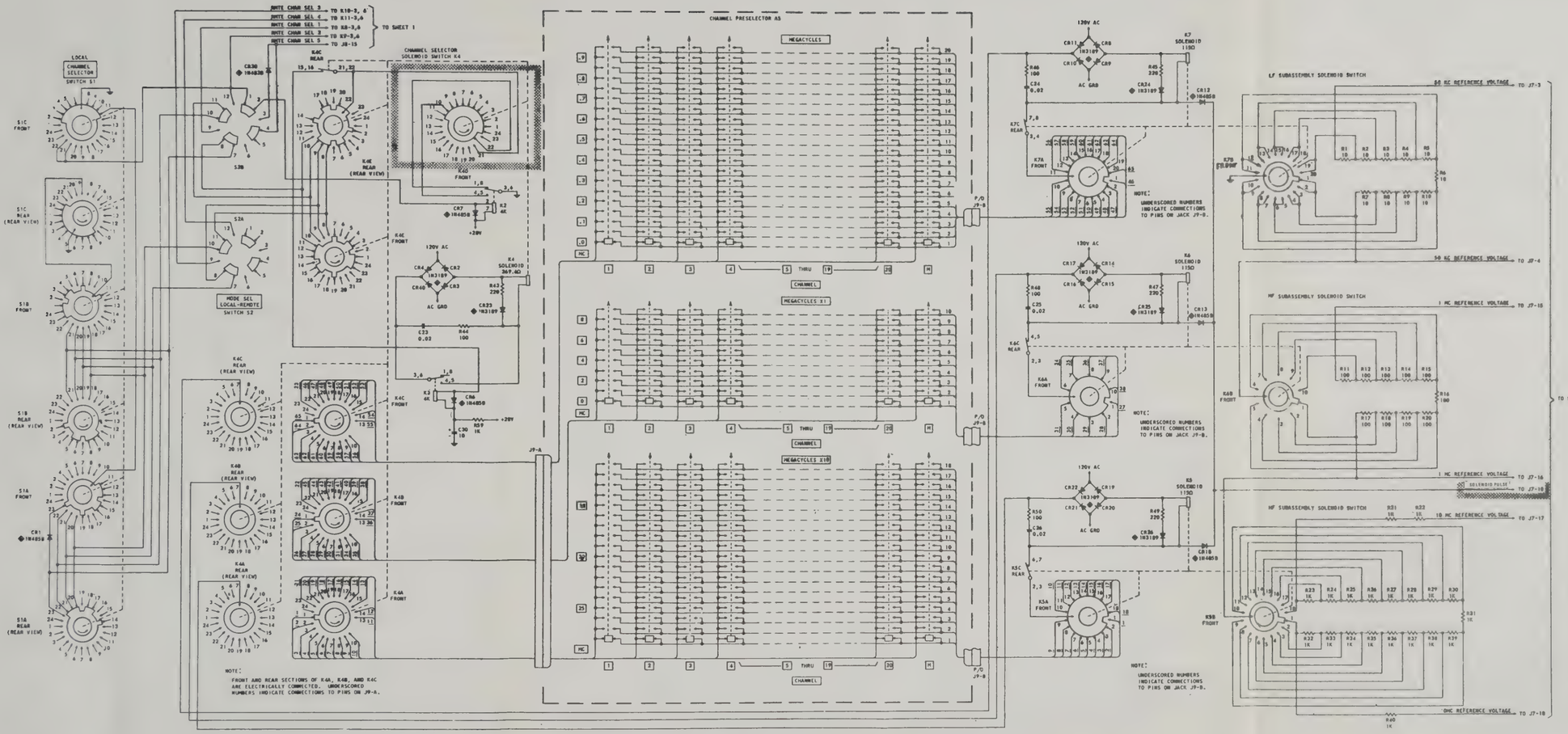

CHANNEL PRESELECTOR AS
MEGACYCLES
MEGACYCLES X1
MEGACYCLES X10
CHANNEL
LOCAL CHANNEL SELECTOR SWITCH S1
MODE SEL LOCAL-REMOTE SWITCH S2
CHANNEL SELECTOR SOLENOID SWITCH K4
TO SHEET 1
TO SHEET I
120V AC
AC GND
+28V
J9-A
P/O J9-A
P/O J9-B
P/O J9-D
LF SUBASSEMBLY SOLENOID SWITCH
HF SUBASSEMBLY SOLENOID SWITCH
HF SUBASSEMBLY SOLENOID SWITCH
50 KC REFERENCE VOLTAGE
50 KC REFERENCE VOLTAGE
1 MC REFERENCE VOLTAGE
1 MC REFERENCE VOLTAGE
SOLENOID PULSE
10 MC REFERENCE VOLTAGE
OMC REFERENCE VOLTAGE
NOTE: FRONT AND REAR SECTIONS OF K4A, K4B, AND K4C ARE ELECTRICALLY CONNECTED. UNDERSCORED NUMBERS INDICATE CONNECTIONS TO PINS ON J9-A.
NOTE: UNDERSCORED NUMBERS INDICATE CONNECTIONS TO PINS ON JACK J9-B.
NOTE: UNDERSCORED NUMBERS INDICATE CONNECTIONS TO PINS ON JACK J9-D.

TABLE 9
CHANNEL PRESELECTOR ASSEMBLY A1, AND K4, P1B AND J9, CHANNEL NO.

P1B	CHANNEL
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	
12	11
13	12
14	13
15	14
16	15
17	16
18	17
19	18
20	19
21	20
22	M

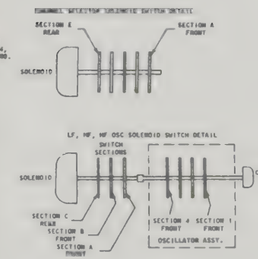
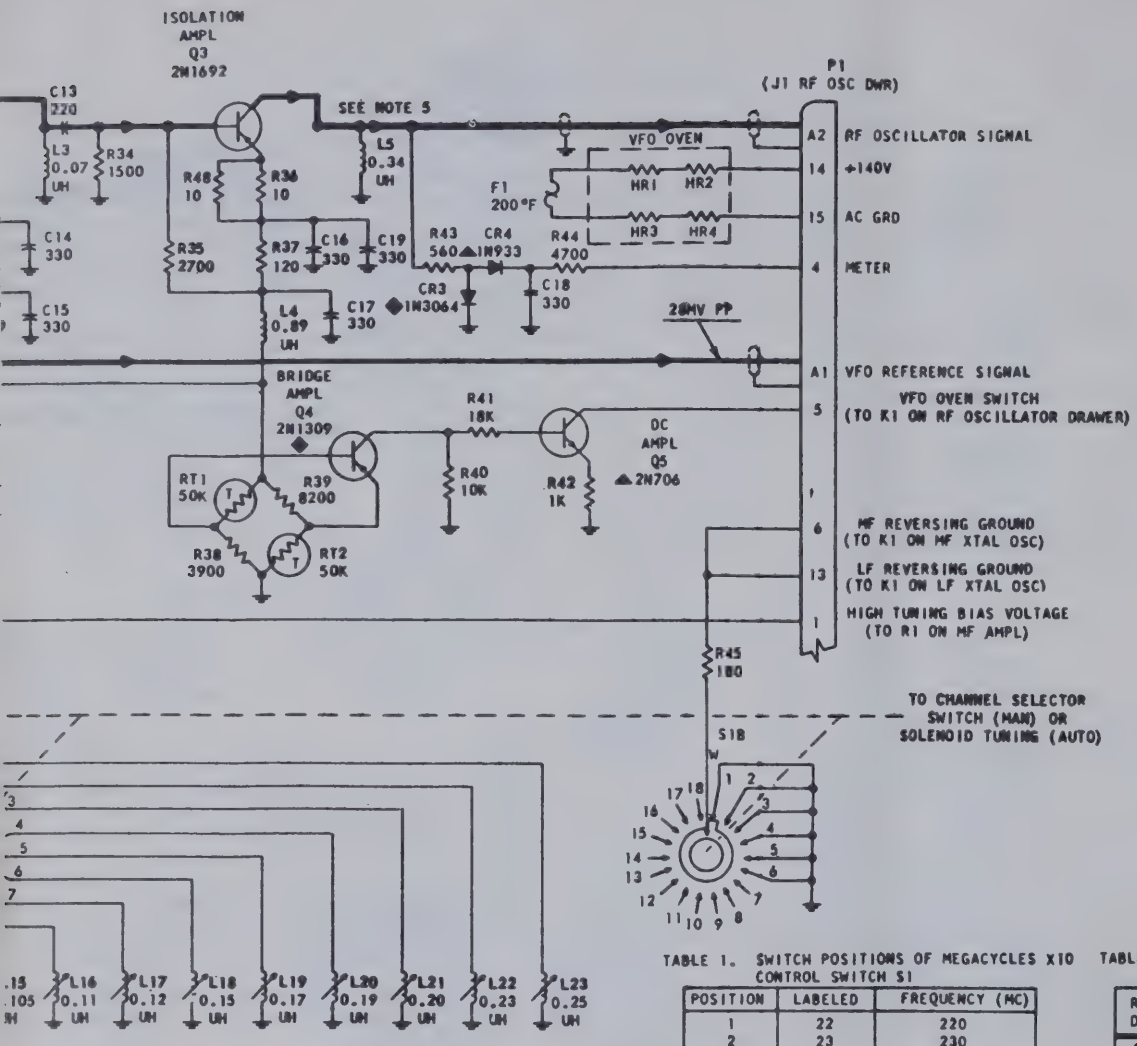


TABLE 1. FREQUENCIES CORRESPONDING TO POSITIONS OF SOLENOIDS K5,K6, AND K7

10 MC CONTROL SOLENOID K5				1 MC CONTROL SOLENOID K6			50KC CONTROL SOLENOID K7		
SOLENOID POSITION	CORRESPONDING SWITCH LABELING	FREQUENCY MC XMTR	FREQUENCY MC RCVR	SOLENOID POSITION	CORRESPONDING SWITCH LABELING	FREQUENCY MC	SOLENOID POSITION	CORRESPONDING SWITCH LABELING	FREQUENCY KC
1	22	220	176	1	0	0	1	.00	0
2	23	230	186	2	1	1	2	.05	50
3	24	240	196	3	2	2	3	.10	100
4	25	250	206	4	3	3	4	.15	150
5	26	260	216	5	4	4	5	.20	200
6	27	270	226	6	5	5	6	.25	250
7	28	280	236	7	6	6	7	.30	300
8	29	290	246	8	7	7	8	.35	350
9	30	300	254	9	8	8	9	.40	400
10	31	310	264	10	9	9	10	.45	450
11	32	320	276				11	.50	500
12	33	330	286				12	.55	550
13	34	340	296				13	.60	600
14	35	350	306				14	.65	650
15	36	360	316				15	.70	700
16	37	370	326				16	.75	750
17	38	380	336				17	.80	800
18	39	390	346				18	.85	850
							19	.90	900
							20	.95	950

Figure 10. Automatic Transmitter Rf Oscillator Drawer, Schematic Diagram (Sheet 2 of 2)



ESS OTHERWISE INDICATED RESISTOR VALUES ARE IN
S, CAPACITOR VALUES ARE IN MICROMICROFARADS.

ERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX
ERENCE DESIGNATIONS WITH: 1A1A3A1A2, 1A3A3A1A2,
3A3A1A2, OR 1A15A3A1A2 FOR MANUAL TRANSMITTERS;
0A3A1A2 FOR AUTOMATIC TRANSMITTERS.

RESISTANCES OF COILS ARE LESS THAN 1 OHM.

VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH
PECT TO GROUND, NO SIGNAL INPUT, AND ALL CONTROLS
IN NORMAL OPERATING POSITION.

WOUND ON 220-OHM RESISTOR.

TABLE 1. SWITCH POSITIONS OF MEGACYCLES X10 CONTROL SWITCH S1

POSITION	LABELED	FREQUENCY (MC)
1	22	220
2	23	230
3	24	240
4	25	250
5	26	260
6	27	270
7	28	280
8	29	290
9	30	300
10	31	310
11	32	320
12	33	330
13	34	340
14	35	350
15	36	360
16	37	370
17	38	380
18	39	390
W	WIPER	

TABLE 2. TRANSISTOR VOLTAGES

REF DES	TERMINALS		
	E	B	C
Q1	6.7	6.5	1.2
Q2	8.5	8.6	0
Q3	8.1	8.0	0
Q4	6.75	7.1	6.7
Q5	2.9	3.6	3.1

Figure 11. Transmitter Hf Vfo, Schematic Diagram

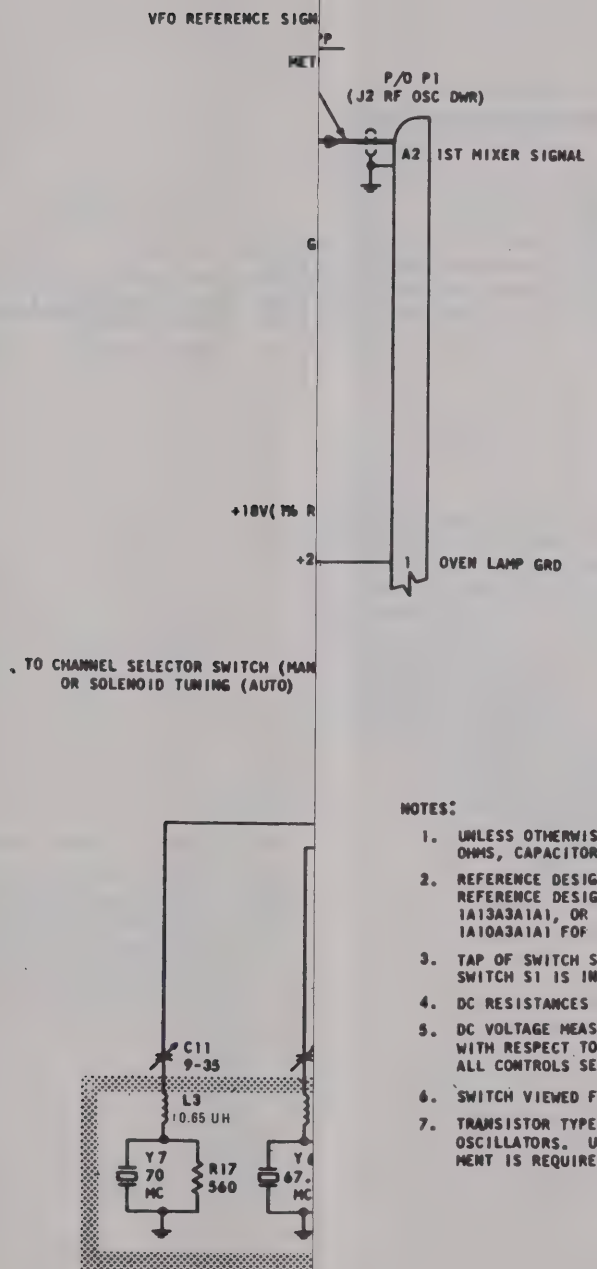


TABLE 1. SWITCH POSITIONS OF MEGACYCLES X10 CONTROL SWITCH S1

POSITION	LABELED	X10 XTAL FREQUENCY (MC)	FREQUENCY (MC)
1	22	72.5	220
2	23	75.0	230
3	24	77.5	240
4	25	80.0	250
5	26	82.5	260
6	27	85.0	270
7	28	55.0	280
8	29	57.5	290
9	30	60.0	300
10	31	62.5	310
11	32	65.0	320
12	33	67.5	330
13	34	70.0	340
14	35		350
15	36		360
16	37		370
17	38		380
18	39		390

TABLE 2. TRANSISTOR VOLTAGES

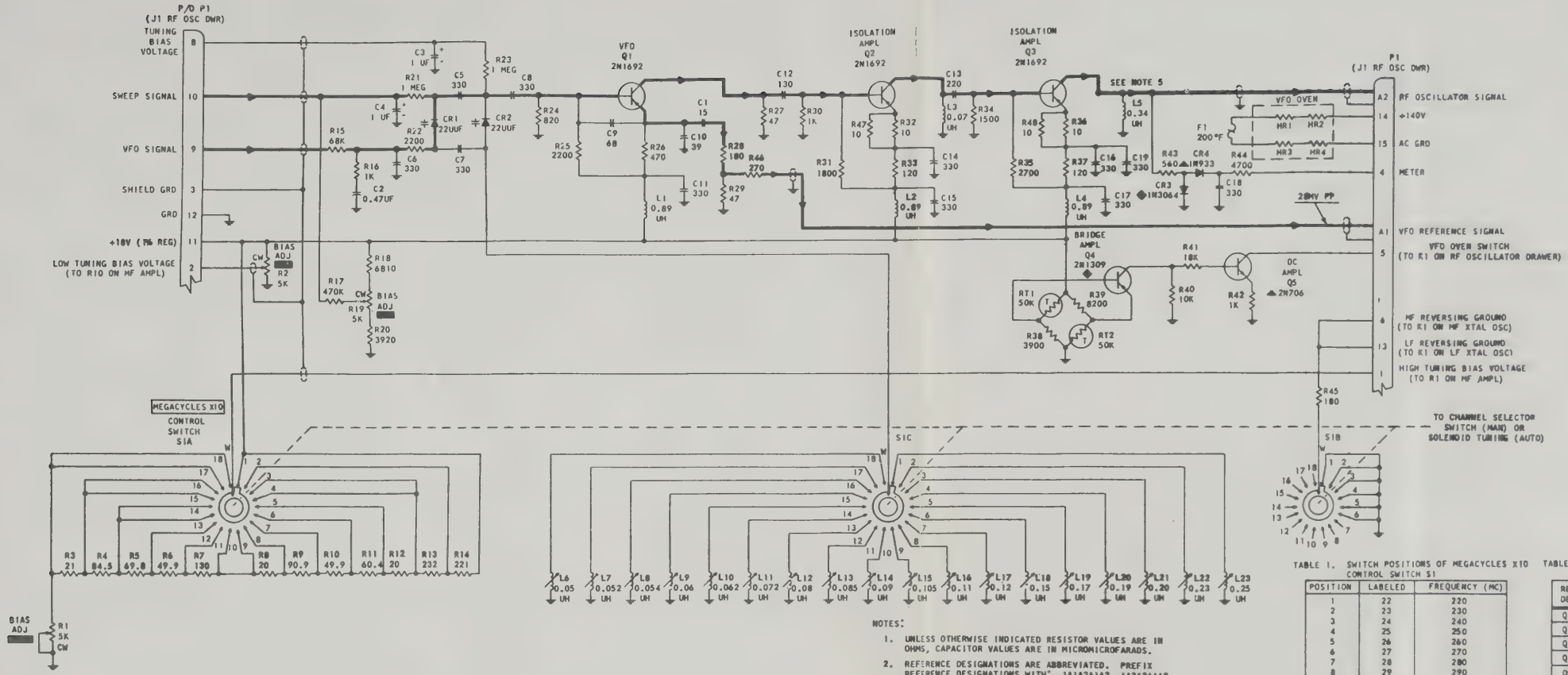
REF DES	TERMINAL		
	E	B	C
Q1	6.4	6.2	0.88
Q2	9.2	8.9	0
Q3	7.6	7.3	0
Q4*	0	0	28
Q4**	0	1.2V	0.55

*S2 OPEN
**S2 CLOSED

NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROMICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED, PREFIX REFERENCE DESIGNATIONS WITH 1A1A3A1A1, 1A3A3A1A1. 1A13A3A1A1, OR 1A15A3A1A1 FOR MANUAL TRANSMITTER, 1A10A3A1A1 FOF AUTOMATIC TRANSMITTER.
3. TAP OF SWITCH S1C REMAINS CONNECTED TO WIPER WHILE SWITCH S1 IS IN POSITIONS 7 THROUGH 12.
4. DC RESISTANCES OF COILS ARE LESS THAN 1 OHM.
5. DC VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT AND ALL CONTROLS SET IN NORMAL OPERATING POSITION.
6. SWITCH VIEWED FROM KNOB END.
7. TRANSISTOR TYPE FOR Q4 IS 2N1484 IN SOME OSCILLATORS. USE TYPE 2N1486 IF REPLACEMENT IS REQUIRED.

Figure 12. Transmitter Hf Crystal Oscillator, Schematic Diagram



NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROMICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH: 1A1A3A1A2, 1A3A3A1A2, 1A13A3A1A2, OR 1A15A3A1A2 FOR MANUAL TRANSMITTERS; 1A10A3A1A2 FOR AUTOMATIC TRANSMITTERS.
3. DC RESISTANCES OF COILS ARE LESS THAN 1 OHM.
4. DC VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT, AND ALL CONTROLS SET IN NORMAL OPERATING POSITION.
5. L5 WOUND ON 220-OHM RESISTOR.

TABLE 1. SWITCH POSITIONS OF MEGACYCLES X10 CONTROL SWITCH S1

POSITION	LABELED	FREQUENCY (MC)
1	22	220
2	23	230
3	24	240
4	25	250
5	26	260
6	27	270
7	28	280
8	29	290
9	30	300
10	31	310
11	32	320
12	33	330
13	34	340
14	35	350
15	36	360
16	37	370
17	38	380
18	39	390
W	WIPER	

TABLE 2. TRANSISTOR VOLTAGES

REF DES	TERMINALS		
	E	B	C
Q1	6.7	6.5	1.2
Q2	8.5	8.6	0
Q3	8.1	8.0	0
Q4	6.75	7.1	6.7
Q5	2.9	3.6	3.1

Figure 11. Transmitter Hf Vfo, Schematic Diagram

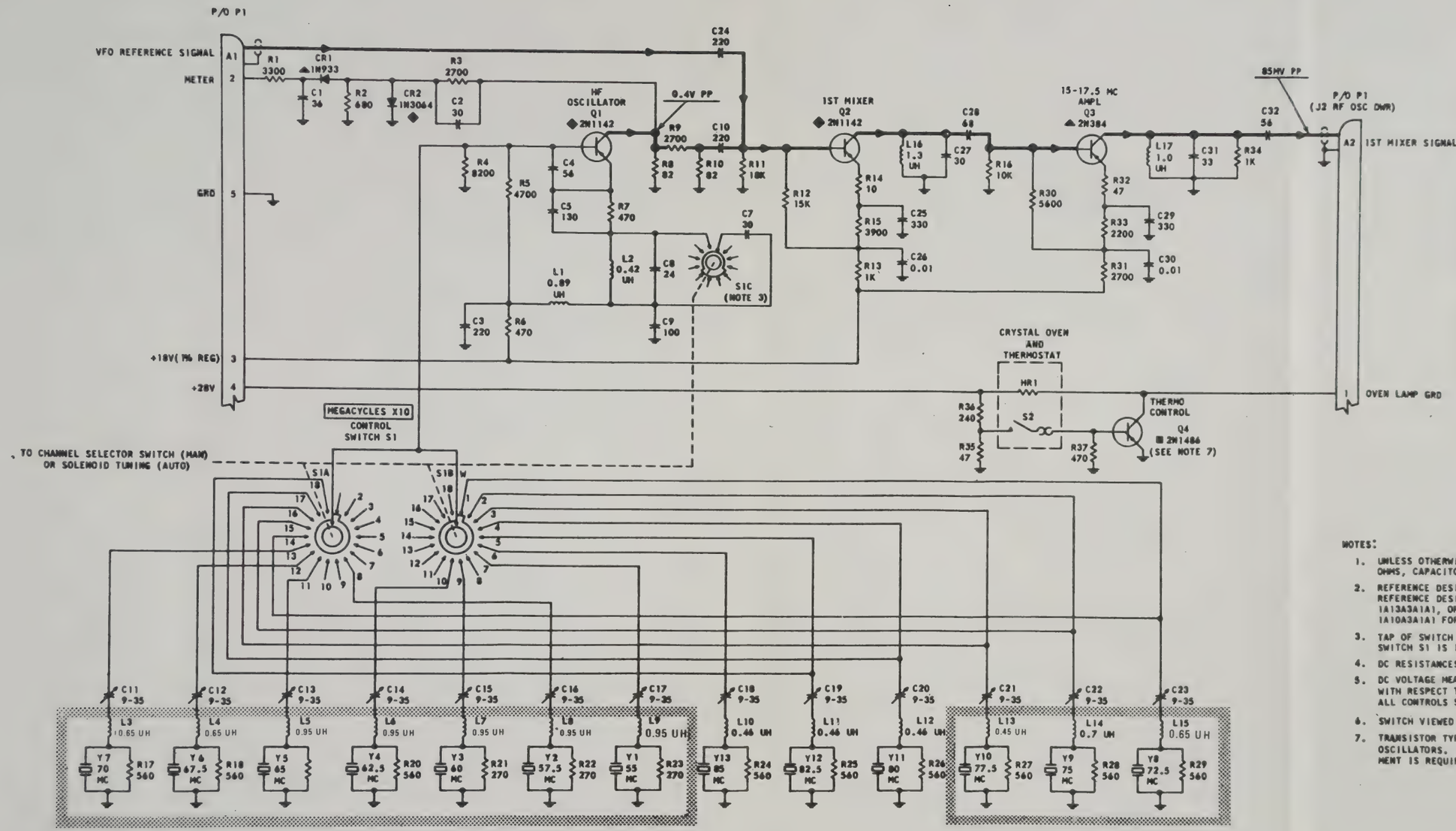


TABLE 1. SWITCH POSITIONS OF MEGACYCLES X10 CONTROL SWITCH S1

POSITION	LABELED	X10 XTAL FREQUENCY (MC)	FREQUENCY (MC)
1	22	72.5	220
2	23	75.0	230
3	24	77.5	240
4	25	80.0	250
5	26	82.5	260
6	27	85.0	270
7	28	55.0	280
8	29	57.5	290
9	30	60.0	300
10	31	62.5	310
11	32	65.0	320
12	33	67.5	330
13	34	70.0	340
14	35		350
15	36		360
16	37		370
17	38		380
18	39		390

TABLE 2. TRANSISTOR VOLTAGES

REF DES	TERMINAL E	TERMINAL B	TERMINAL C
Q1	6.4	6.2	0.88
Q2	9.2	8.9	0
Q3	7.6	7.3	0
Q4*	0	0	28
Q4**	0	1.2V	0.55

*S2 OPEN
**S2 CLOSED

NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROMICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED, PREFIX REFERENCE DESIGNATIONS WITH 1A1A3A1A1, 1A3A3A1A1, 1A13A3A1A1, OR 1A15A3A1A1 FOR MANUAL TRANSMITTER, 1A10A3A1A1 FOR AUTOMATIC TRANSMITTER.
3. TAP OF SWITCH S1C REMAINS CONNECTED TO WIPER WHILE SWITCH S1 IS IN POSITIONS 7 THROUGH 12.
4. DC RESISTANCES OF COILS ARE LESS THAN 1 OHM.
5. DC VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT AND ALL CONTROLS SET IN NORMAL OPERATING POSITION.
6. SWITCH VIEWED FROM KNOB END.
7. TRANSISTOR TYPE FOR Q4 IS 2N1484 IN SOME OSCILLATORS. USE TYPE 2N1486 IF REPLACEMENT IS REQUIRED.

Figure 12. Transmitter Hf Crystal Oscillator, Schematic Diagram

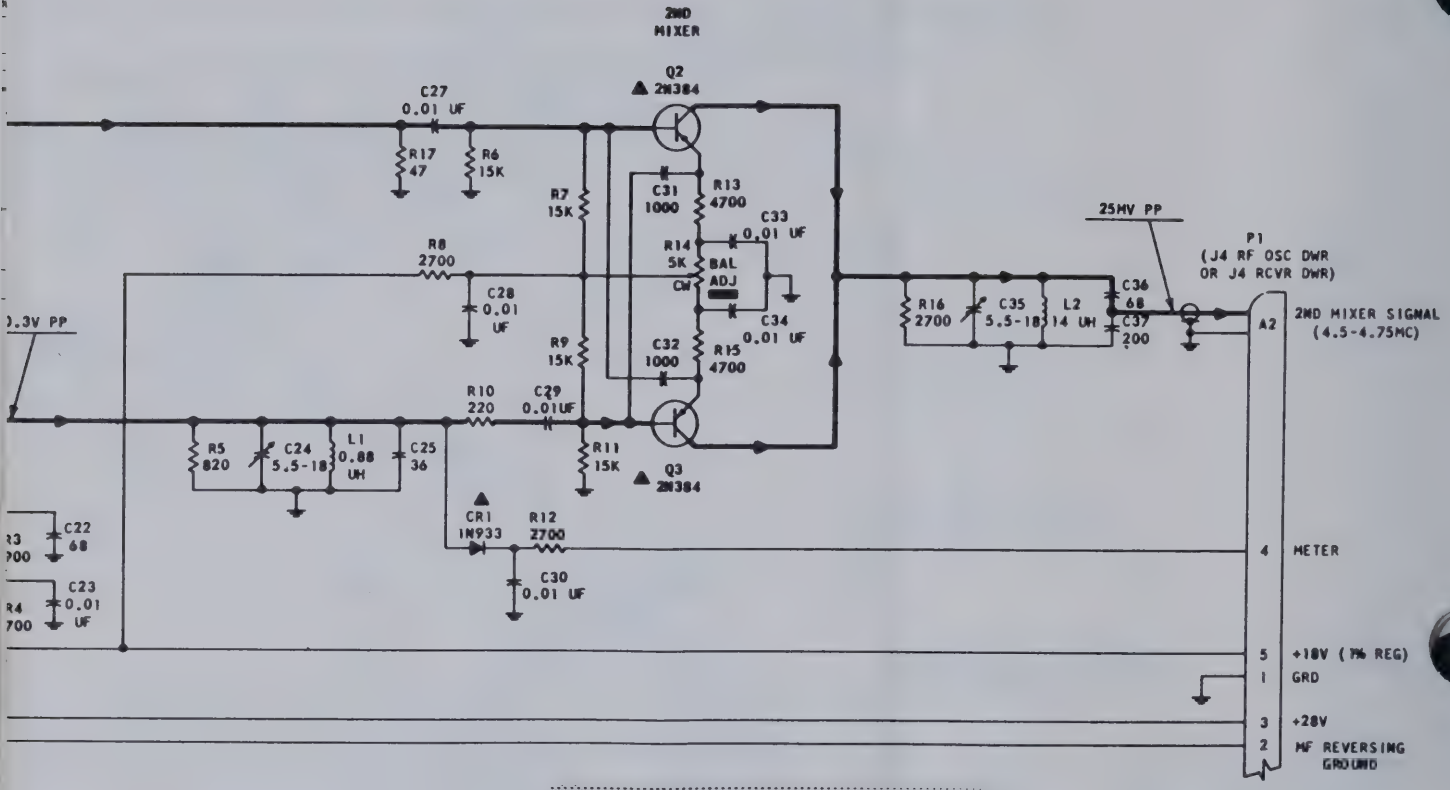


TABLE 1. SWITCH POSITIONS OF MEGACYCLES X1 CONTROL SWITCH S1

POSITION	LABELED	X1 FREQ (MC) K1 ENERGIZED	X1 FREQ (MC) K1 DEENERGIZED
1	0	22.00	19.00
2	1	21.75	20.00
3	2	21.50	20.25
4	3	21.25	20.50
5	4	21.00	20.75
6	5	20.75	21.00
7	6	20.50	21.25
8	7	20.25	21.50
9	8	20.00	21.75
10	9	19.75	22.00
W	WIPER		

TABLE 2. TRANSISTOR VOLTAGES

REF DES	TERMINALS		
	E	B	C
Q1	4.9	4.7	0
Q2	6.2	5.8	0
Q3	6.2	5.8	0

E INDICATED RESISTOR VALUES ARE IN
VALUES ARE IN MICROMICROFARADS.
NATIONS ARE ABBREVIATED. PREFIX REF-
IONS WITH: 1A1A3A2A1, 1A3A3A2A1,
1A15A3A2A1 FOR MANUAL TRANSMITTER;
1, 1A14A2A1, OR 1A16A2A1 FOR MANUAL
3A2A1 FOR AUTOMATIC TRANSMITTER;
TOMATIC RECEIVER.

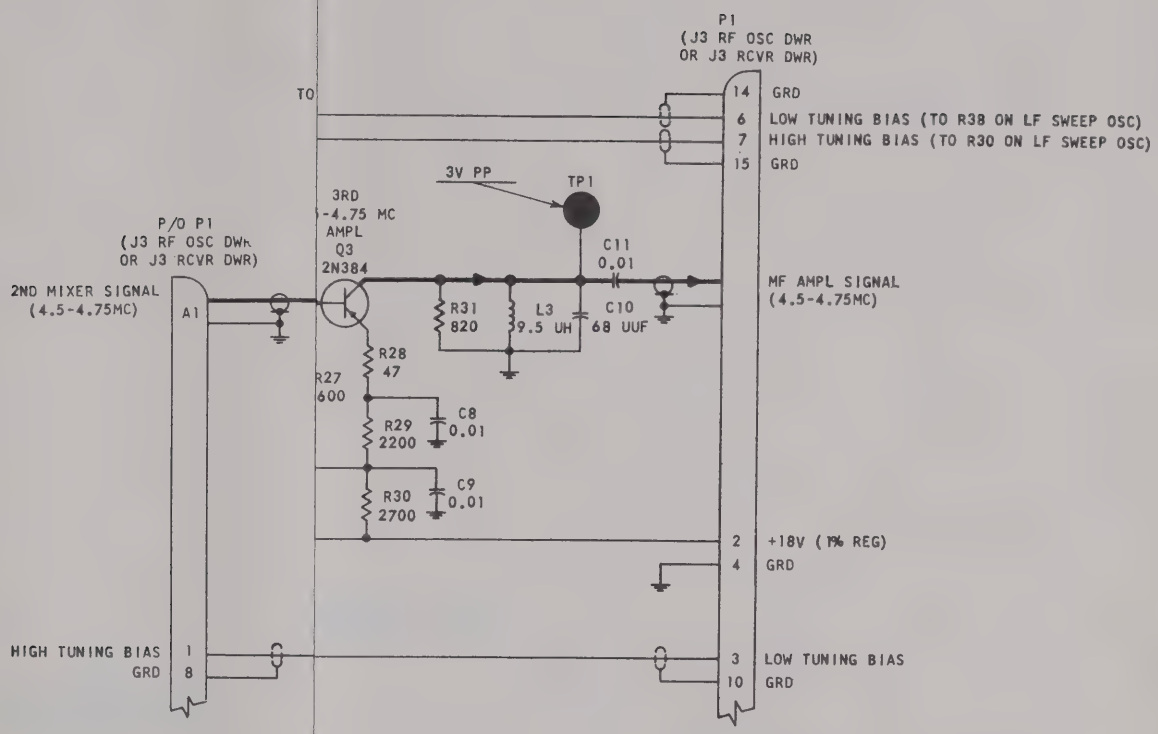
OF COILS ARE LESS THAN 1 OHM.

EWED FROM KNOB END.

UREMENTS TAKEN WITH A VTVM WITH
ND, NO SIGNAL INPUT, AND ALL CON-
RMAL OPERATING POSITION.

AM FOR MOTOROLA PT. NO. 01-31688801

Figure 13. Transmitter and Receiver Mf Crystal Oscillator, Schematic Diagram



A2A2,
,
FOR
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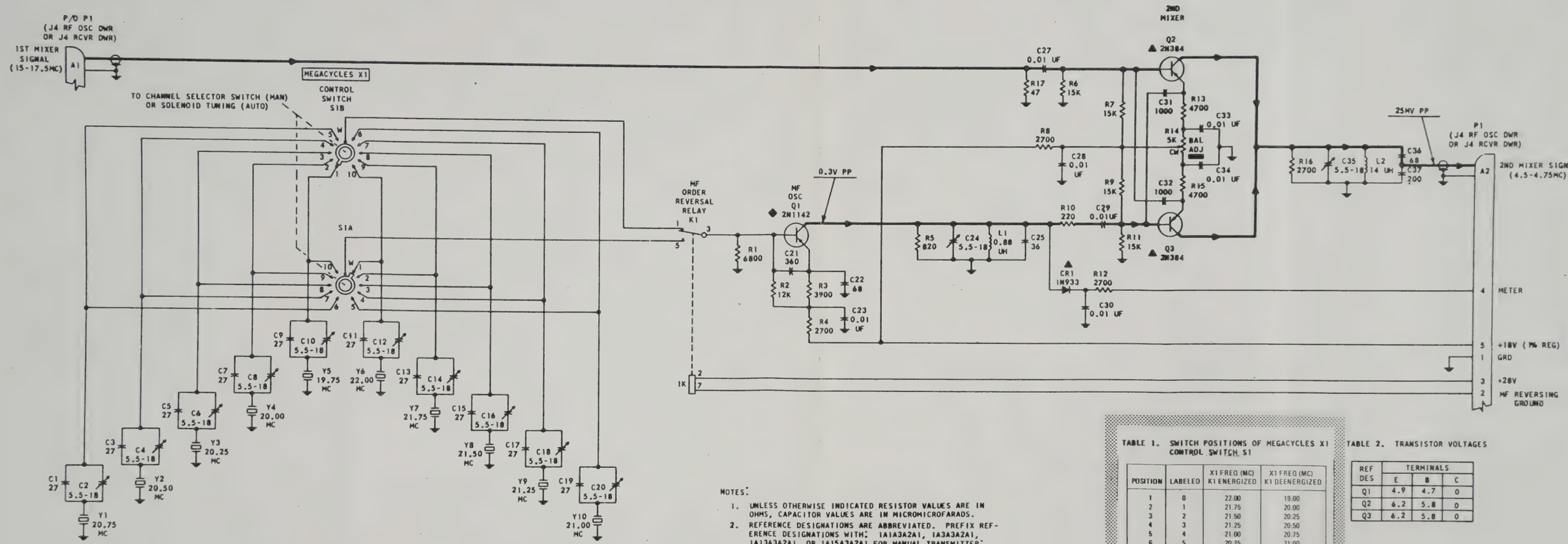
Figure 14. Transmitter and Receiver Mf Amplifer, Schematic Diagram



NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROMICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH: 1A1A3A2A1, 1A3A3A2A1, 1A13A3A2A1, OR 1A15A3A2A1 FOR MANUAL TRANSMITTER; 1A2A2A1, 1A4A2A1, 1A14A2A1, OR 1A16A2A1 FOR MANUAL RECEIVER; 1A10A3A2A1 FOR AUTOMATIC TRANSMITTER; 1A11A2A1 FOR AUTOMATIC RECEIVER.
3. DC RESISTANCES OF COILS ARE LESS THAN 1 OHM.
4. SWITCHES ARE VIEWED FROM KNOB END.
5. DC VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT, AND ALL CONTROLS SET IN NORMAL OPERATING POSITION.
6. SCHEMATIC DIAGRAM FOR MOTOROLA PT. NO. 01-31688B01

TABLE 1. SWITCH POSITIONS OF MEGACYCLES X1 CONTROL SWITCH S1

POSITION	LABELED	X1 FREQ (MC) K1 ENERGIZED	X1 FREQ (MC) K1 DEENERGIZED
1	0	22.00	19.00
2	1	21.75	20.00
3	2	21.50	20.25
4	3	21.25	20.50
5	4	21.00	20.75
6	5	20.75	21.00
7	6	20.50	21.25
8	7	20.25	21.50
9	8	20.00	21.75
10	9	19.75	22.00
W	WIPER		

TABLE 2. TRANSISTOR VOLTAGES

REF DES	TERMINALS E	B	C
Q1	4.9	4.7	0
Q2	6.2	5.8	0
Q3	6.2	5.8	0

Figure 13. Transmitter and Receiver Mf Crystal Oscillator, Schematic Diagram

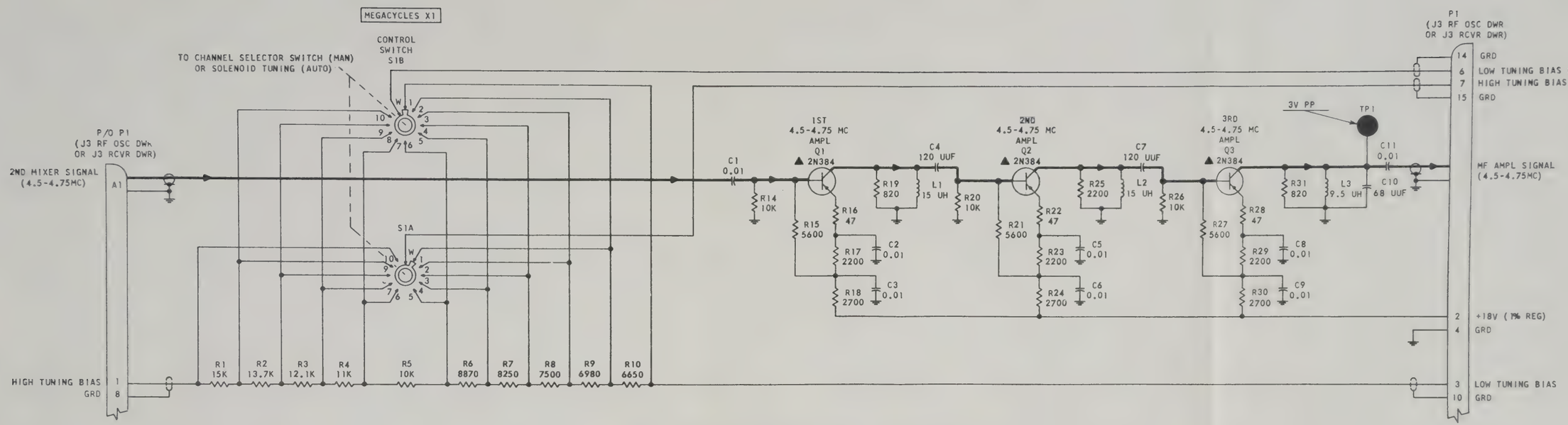


TABLE 1. SWITCH POSITIONS OF MEGACYCLES X1 CONTROL SWITCH S1

POSITION	LABELED	FREQUENCY (MC)
1	0	0
2	1	1
3	2	2
4	3	3
5	4	4
6	5	5
7	6	6
8	7	7
9	8	8
10	9	9
W	WIPER	

TABLE 2. TRANSISTOR VOLTAGES

REF DES	TERMINAL		
	E	B	C
Q1	7.8	7.6	0
Q2	7.8	7.6	0
Q3	7.8	7.6	0

NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH: 1A1A3A2A2, 1A3A3A2A2, 1A13A3A2A2, OR 1A15A3A2A2 FOR MANUAL TRANSMITTER; 1A2A2A2, 1A4A2A2, 1A14A2A2, OR 1A16A2A2 FOR MANUAL RECEIVER; 1A10A3A2A2 FOR AUTOMATIC TRANSMITTER; 1A11A2A2 FOR AUTOMATIC RECEIVER.
3. DC RESISTANCES OF COILS ARE LESS THAN 1 OHM.
4. DC VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT, AND ALL CONTRO SET IN NORMAL OPERATING POSITION.
5. SWITCH VIEWED FROM KNOB END.
6. SCHEMATIC DIAGRAM FOR MOTOROLA PT. NO. 01-31689B01

Figure 14. Transmitter and Receiver Mf Amplifer, Schematic Diagram

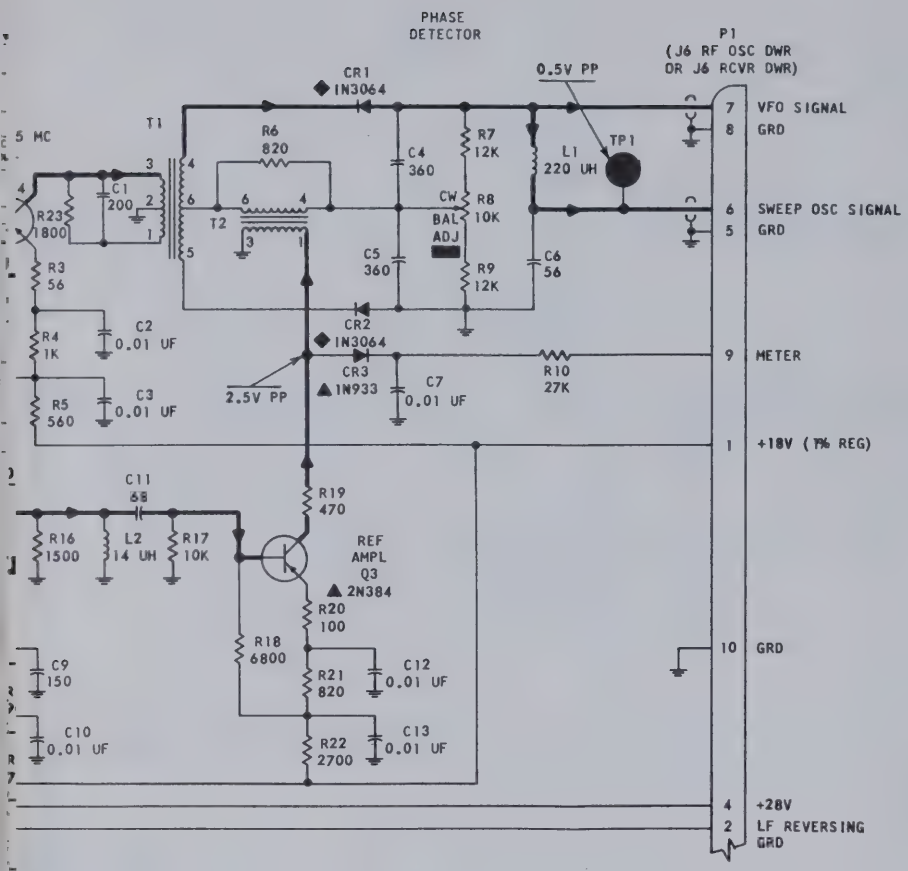
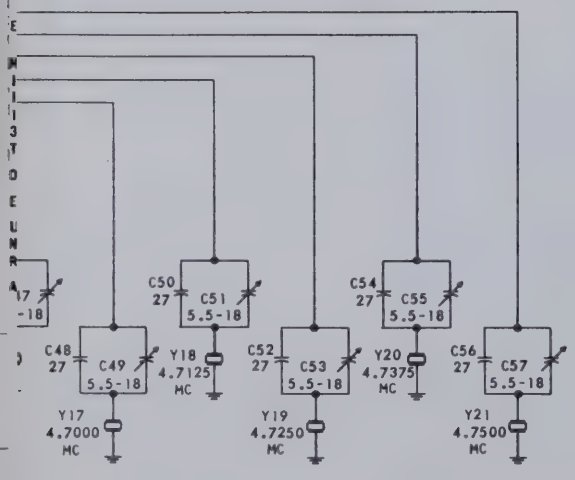


TABLE 1. SWITCH POSITIONS OF MEGACYCLES CONTROL SWITCH S1

POSITION	LABELED	FREQUENCY (KC)
1	.00	0
2	.05	50
3	.10	100
4	.15	150
5	.20	200
6	.25	250
7	.30	300
8	.35	350
9	.40	400
10	.45	450
11	.50	500
12	.55	550
13	.60	600
14	.65	650
15	.70	700
16	.75	750
17	.80	800
18	.85	850
19	.90	900
20	.95	950
W	WIPER	

TABLE 2. TRANSISTOR VOLTAGES

REF DES	TERMINAL		
	E	B	C
Q1	9.0	8.7	0
Q2	4.3	4.2	0
Q3	5.9	5.8	1.5



NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROMICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH: 1A1A3A3A1, 1A3A3A3A1, 1A13A3A3A1, OR 1A15A3A3A1 FOR MANUAL TRANSMITTER; 1A2A3A1, 1A4A3A1, 1A14A3A1, OR 1A16A3A1 FOR MANUAL RECEIVERS; 1A10A3A3A1 FOR AUTOMATIC TRANSMITTER; 1A11A3A1 FOR AUTOMATIC RECEIVER.
3. DC RESISTANCES OF COILS AND TRANSFORMERS ARE LESS THAN 1 OHM.
4. DC VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT AND ALL CONTROLS SET IN NORMAL OPERATING POSITION.
5. SWITCH IS VIEWED FROM KNOB END.
6. SCHEMATIC DIAGRAM FOR MOTOROLA PT. NO. 01-31676B01

Figure 15. Transmitter and Receiver Lf Crystal Oscillator, Schematic Diagram

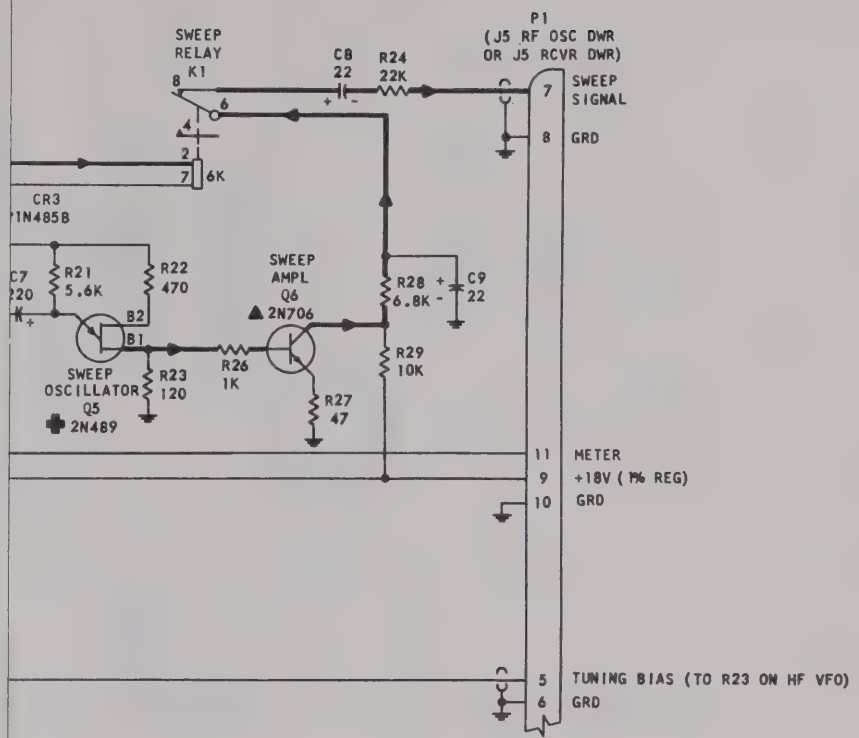


TABLE 1. SWITCH POSITIONS OF MEGACYCLES CONTROL SWITCH S1

POSITION	LABELED	FREQUENCY (KC)
1	.00	0
2	.05	50
3	.10	100
4	.15	150
5	.20	200
6	.25	250
7	.30	300
8	.35	350
9	.40	400
10	.45	450
11	.50	500
12	.55	550
13	.60	600
14	.65	650
15	.70	700
16	.75	750
17	.80	800
18	.85	850
19	.90	900
20	.95	950
W	WIPER	

TABLE 2. TRANSISTOR VOLTAGES

REF DES	TERMINAL		
	E	B	C
Q1	10.2	10.0	0
Q2	10.0	9.9	6.5
Q3	0.3	0	14.2
Q4	0.38	0	0.54
Q5	3-9	B_2 13-16 B_1 0.3-1.1	
Q6	0-15	0.4-0.8	0-15.5

Figure 16. Transmitter and Receiver Lf Sweep Oscillator, Schematic Diagram

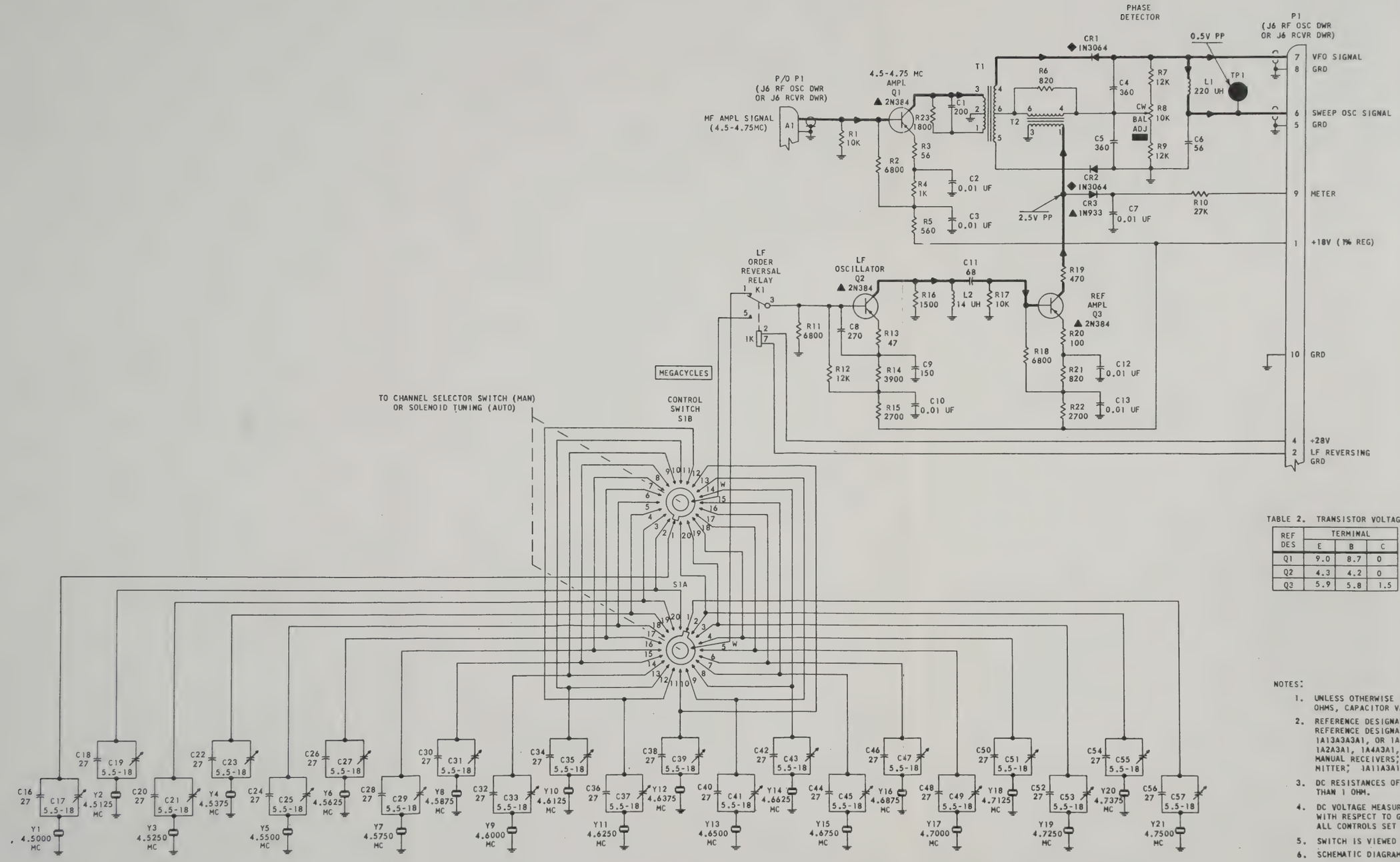


TABLE 1. SWITCH POSITIONS OF MEGACYCLES CONTROL SWITCH S1

POSITION	LABELED	FREQUENCY (KC)
1	.00	0
2	.05	50
3	.10	100
4	.15	150
5	.20	200
6	.25	250
7	.30	300
8	.35	350
9	.40	400
10	.45	450
11	.50	500
12	.55	550
13	.60	600
14	.65	650
15	.70	700
16	.75	750
17	.80	800
18	.85	850
19	.90	900
20	.95	950
W	WIPER	

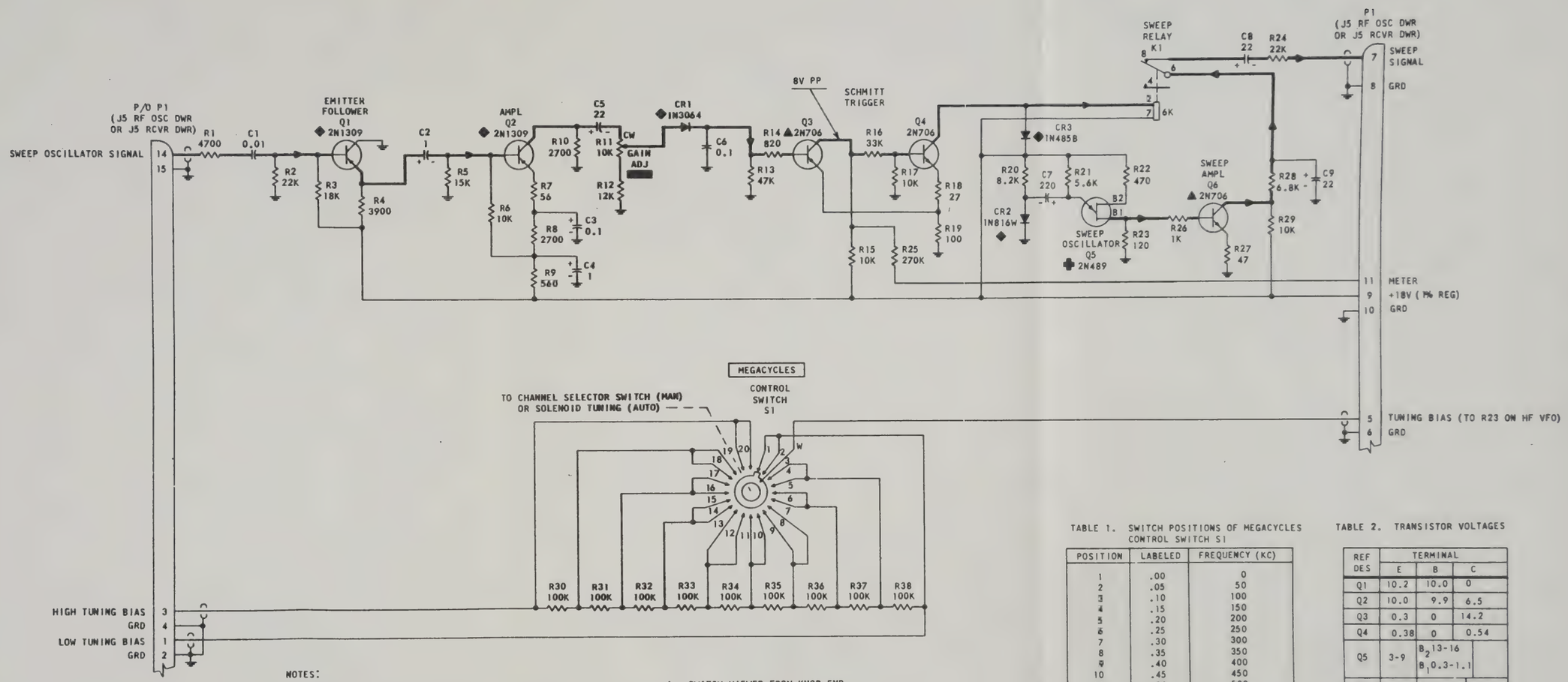
TABLE 2. TRANSISTOR VOLTAGES

REF DES	TERMINAL		
	E	B	C
Q1	9.0	8.7	0
Q2	4.3	4.2	0
Q3	5.9	5.8	1.5

NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROMICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH: 1A1A3A3A1, 1A3A3A3A1, 1A13A3A3A1, OR 1A15A3A3A1 FOR MANUAL TRANSMITTER; 1A2A3A1, 1A4A3A1, 1A14A3A1, OR 1A16A3A1 FOR MANUAL RECEIVERS; 1A10A3A3A1 FOR AUTOMATIC TRANSMITTER; 1A11A3A1 FOR AUTOMATIC RECEIVER.
3. DC RESISTANCES OF COILS AND TRANSFORMERS ARE LESS THAN 1 OHM.
4. DC VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT AND ALL CONTROLS SET IN NORMAL OPERATING POSITION.
5. SWITCH IS VIEWED FROM KNOB END.
6. SCHEMATIC DIAGRAM FOR MOTOROLA PT. NO. 01-31676B01

Figure 15. Transmitter and Receiver Lf Crystal Oscillator, Schematic Diagram



NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH: 1A1A3A3A2, 1A3A3A3A2, 1A13A3A3A2, OR 1A15A3A3A2, FOR MANUAL TRANSMITTER; 1A2A3A2, 1A4A3A2, 1A14A3A2, 1A16A3A2 FOR MANUAL RECEIVER; 1A10A3A3A2 FOR AUTOMATIC TRANSMITTER; 1A11A3A2 FOR AUTOMATIC RECEIVER
3. DC VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND FOR Q1 THRU Q4 AND AN OSCILLOSCOPE FOR Q5 AND Q6, NO SIGNAL INPUT AND ALL CONTROLS SET IN NORMAL OPERATING POSITION. OSCILLOSCOPE USED TO MEASURE OSCILLATING VOLTAGES ON Q5 AND Q6.
4. SWITCH VIEWED FROM KNOB END.
5. SCHEMATIC DIAGRAM FOR MOTOROLA PART NO. 01-31698B01.

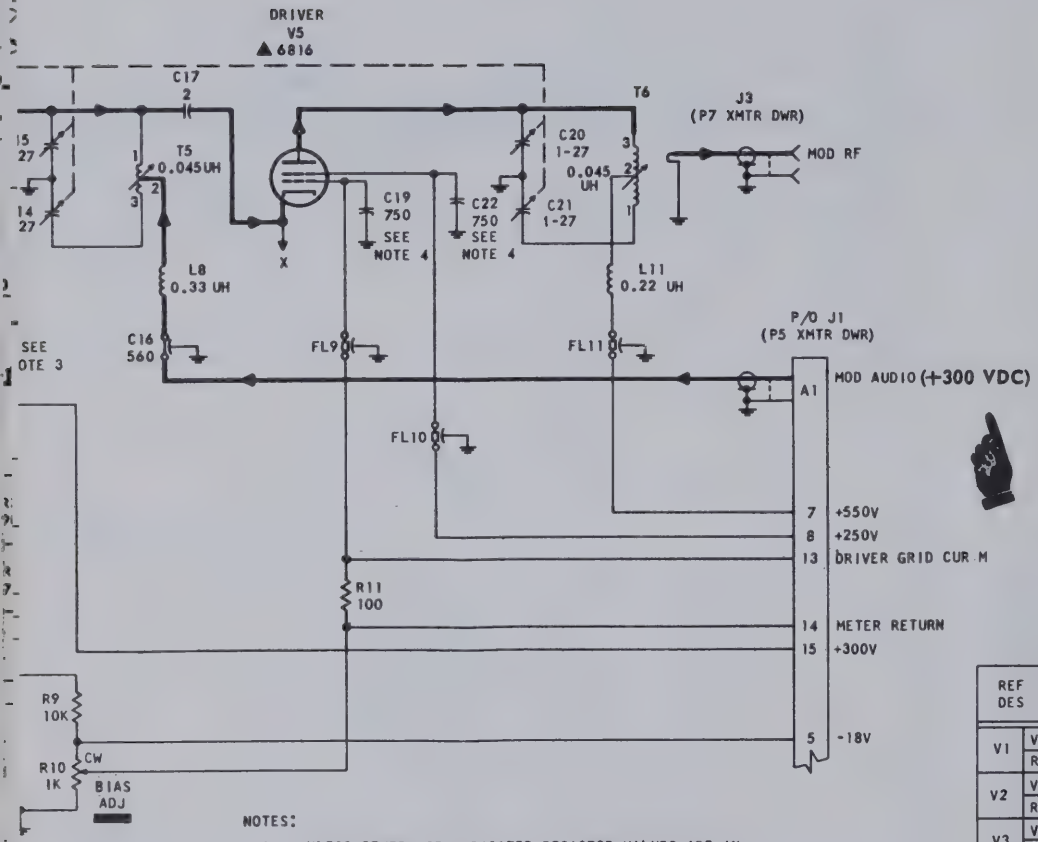
TABLE 1. SWITCH POSITIONS OF MEGACYCLES CONTROL SWITCH S1

POSITION	LABELED	FREQUENCY (KC)
1	.00	0
2	.05	50
3	.10	100
4	.15	150
5	.20	200
6	.25	250
7	.30	300
8	.35	350
9	.40	400
10	.45	450
11	.50	500
12	.55	550
13	.60	600
14	.65	650
15	.70	700
16	.75	750
17	.80	800
18	.85	850
19	.90	900
20	.95	950
W	WIPER	

TABLE 2. TRANSISTOR VOLTAGES

REF DES	TERMINAL		
	E	B	C
Q1	10.2	10.0	0
Q2	10.0	9.9	6.5
Q3	0.3	0	14.2
Q4	0.38	0	0.54
Q5	3-9	B_2 13-16 B_1 0.3-1.1	
Q6	0-15	0.4-0.8	0-15.5

Figure 16. Transmitter and Receiver Lf Sweep Oscillator, Schematic Diagram



NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROMICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH: 1A1A1A3, 1A3A1A3, 1A13A1A3 OR 1A15A1A3 FOR MANUAL TRANSMITTER; 1A10A1A3 FOR AUTOMATIC TRANSMITTER.
3. C13 (300 UUF MINIMUM) BUILT INTO V4 TUBE SOCKET
4. C19 AND C22 (750 UUF MINIMUM) BUILT INTO V5 TUBE SOCKET
5. ALL TRANSFORMER AND COIL DC RESISTANCE VALUES ARE LESS THAN ONE OHM.
6. VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT, AND ALL CONTROLS IN NORMAL OPERATING POSITION.
7. RESISTANCE MEASUREMENTS TAKEN WITH A VOM.

VACUUM TUBE
VOLTAGE AND RESISTANCE

REF DES		TERMINALS P	G_1	G_2	K	H	H
V1	V	300	0	—	3	0	6.3
	R	5K	0	—	200	0	.38
V2	V	300	-3	—	0	0	6.3
	R	10K	18K	—	0	0	.38
V3	V	300	-3	—	0	0	6.3
	R	10K	18K	—	0	0	.38
V4	V	300	-3	—	1	0	6.3
	R	10K	15K	—	100	0	.38
V5	V	550	-12	250	0	0	6.1
	R	10K	650	10K	0	0	.38

VACUUM TUBE TERMINAL DETAILS

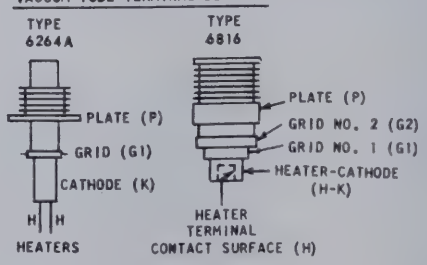


Figure 17. Transmitter 10-Watt Driver, Schematic Diagram

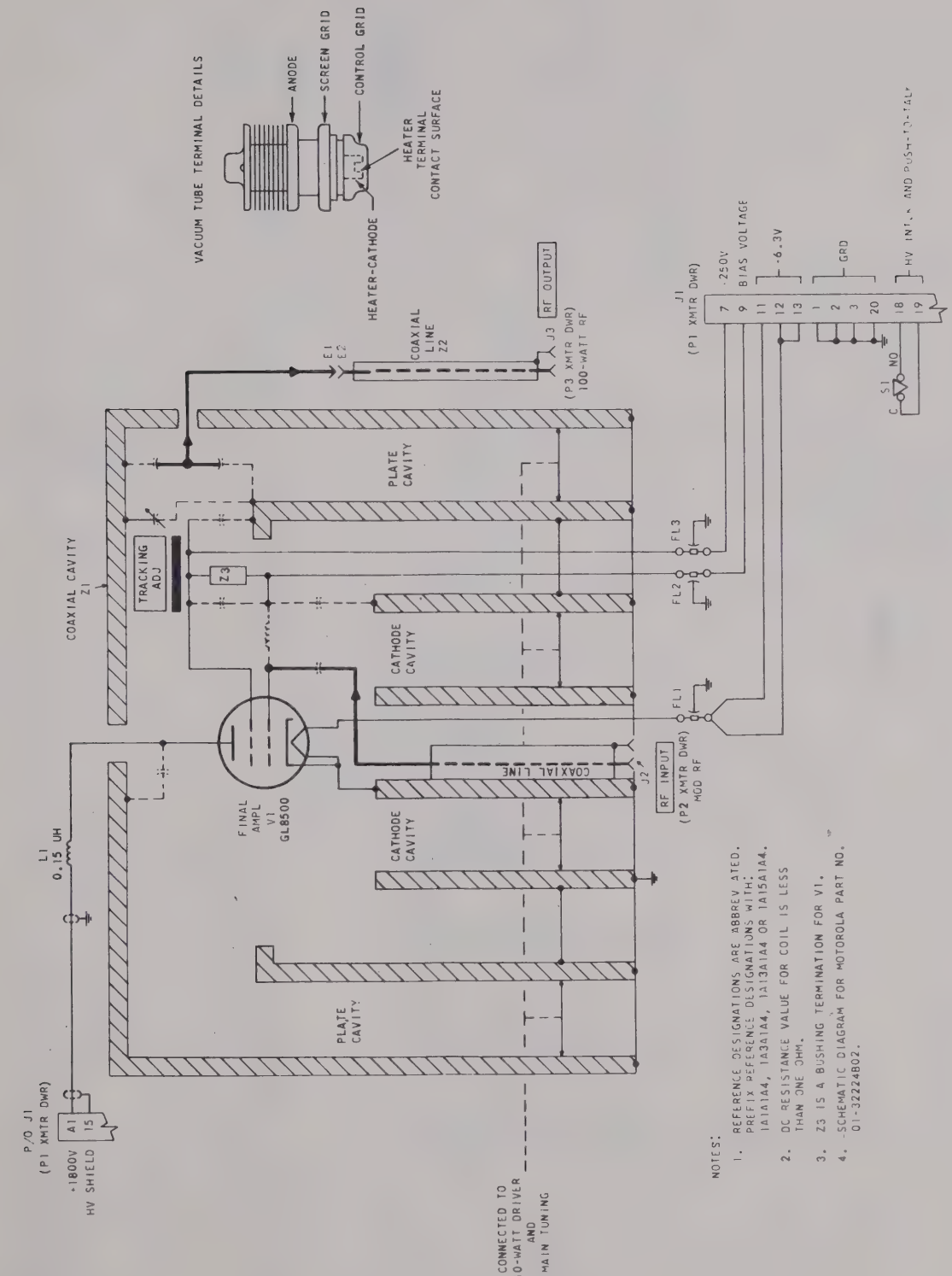
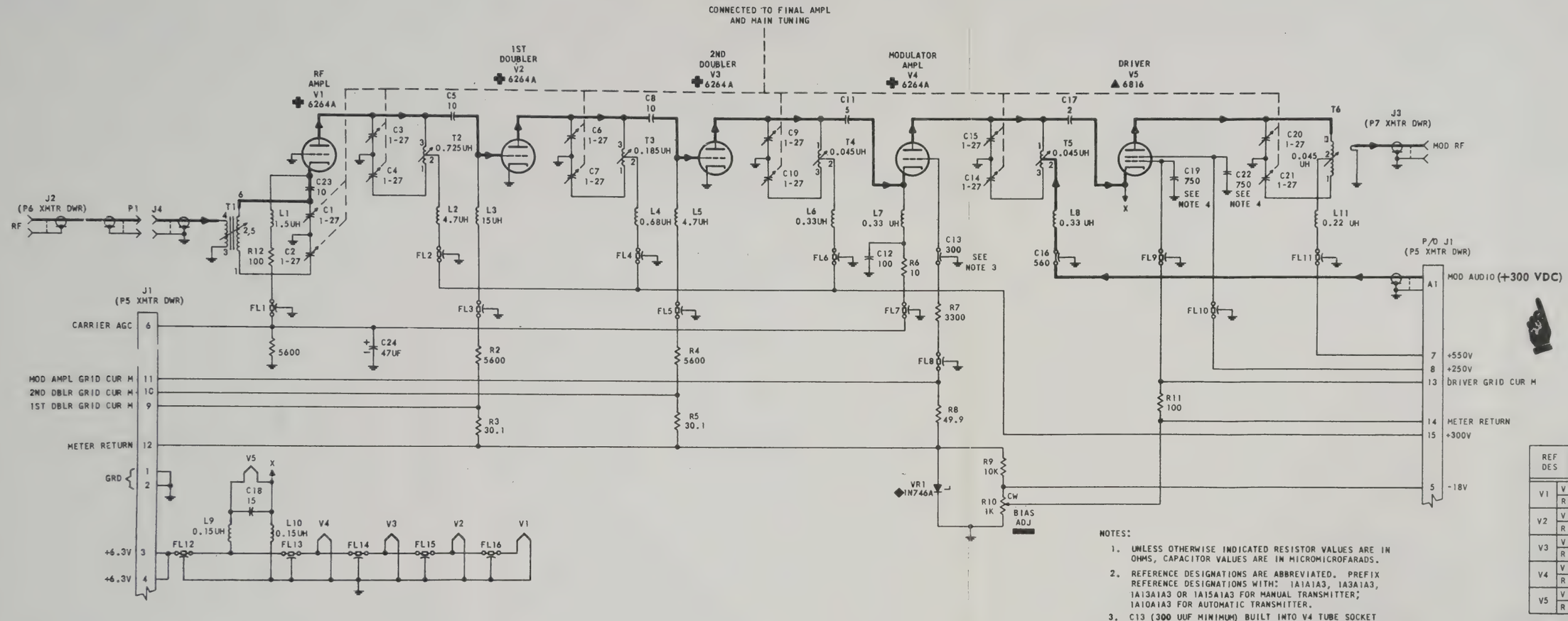


Figure 18. Manual Transmitter Final Amplifier, Schematic Diagram



VACUUM TUBE VOLTAGE AND RESISTANCE

REF DES		TERMINALS P	G_1	G_2	K	H	H
V1	V	300	0	—	3	0	6.3
	R	5K	0	—	200	0	.38
V2	V	300	-3	—	0	0	6.3
	R	10K	18K	—	0	0	.38
V3	V	300	-3	—	0	0	6.3
	R	10K	18K	—	0	0	.38
V4	V	300	-3	—	1	0	6.3
	R	10K	15K	—	100	0	.38
V5	V	550	-12	250	0	0	6.1
	R	10K	650	10K	0	0	.38

NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROMICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH: 1A1A1A3, 1A3A1A3, 1A13A1A3 OR 1A15A1A3 FOR MANUAL TRANSMITTER; 1A10A1A3 FOR AUTOMATIC TRANSMITTER.
3. C13 (300 UUF MINIMUM) BUILT INTO V4 TUBE SOCKET
4. C19 AND C22 (750 UUF MINIMUM) BUILT INTO V5 TUBE SOCKET
5. ALL TRANSFORMER AND COIL DC RESISTANCE VALUES ARE LESS THAN ONE OHM.
6. VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT, AND ALL CONTROLS IN NORMAL OPERATING POSITION.
7. RESISTANCE MEASUREMENTS TAKEN WITH A VOM.

VACUUM TUBE TERMINAL DETAILS

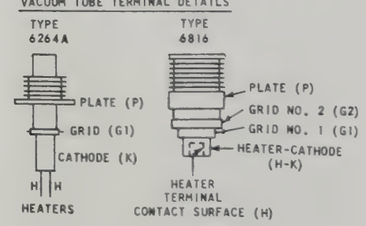


Figure 17. Transmitter 10-Watt Driver, Schematic Diagram

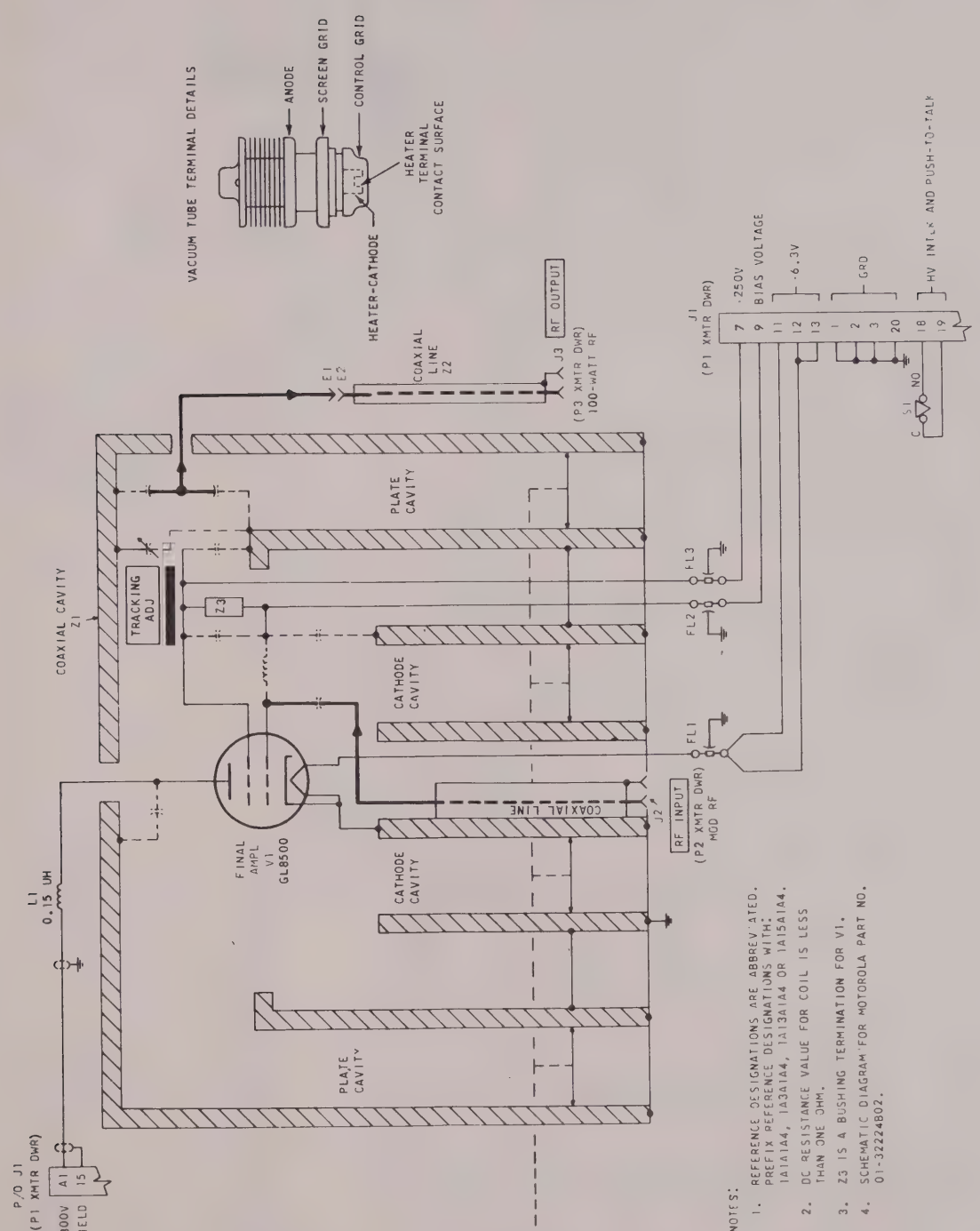


Figure 18. Manual Transmitter Final Amplifier, Schematic Diagram

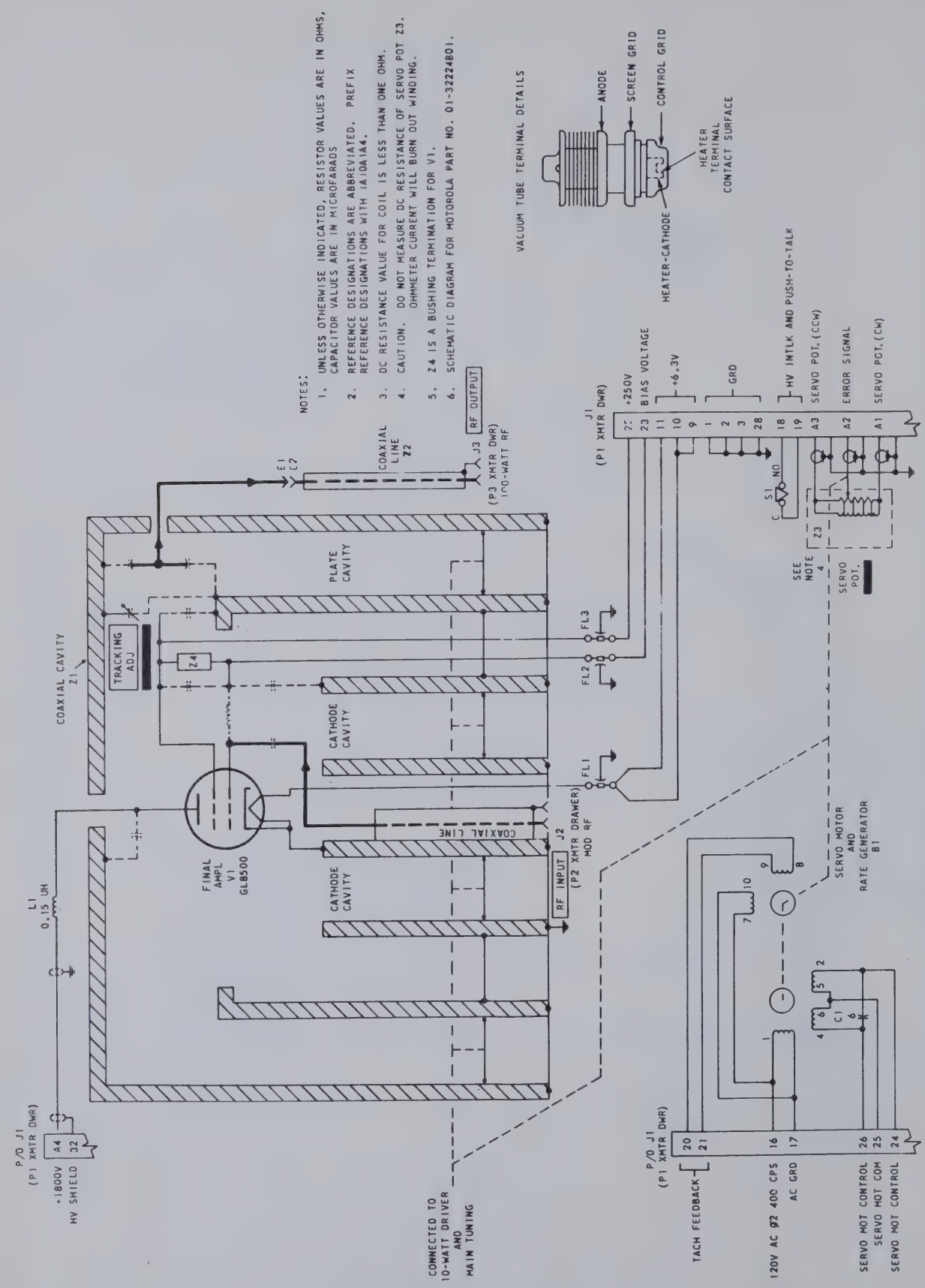
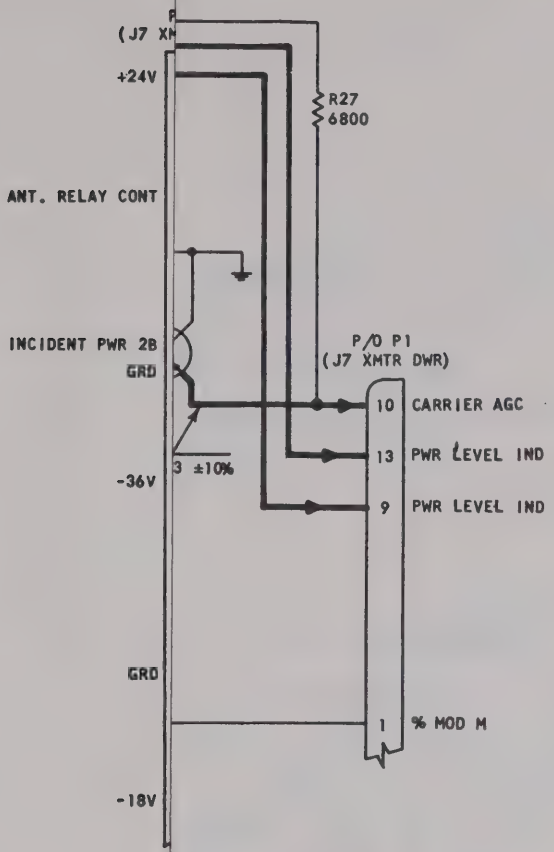
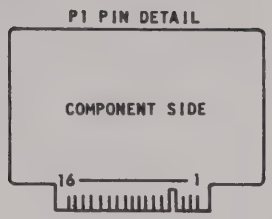


Figure 19. Automatic Transmitter Final Amplifier, Schematic Diagram





TRANSISTOR VOLTAGES

REF DES	TERMINAL		
	E	B	C
Q1	-0.46	0	21.3
Q2	-1.05	-0.46	17.6
Q3	-1.15	-0.52	2.1
Q4	-0.52	0	21.3
Q5	17.1	17.6	21.3
Q6	16.5	17.1	21.3
Q7	0.63	1.28	0.69
Q8	0.55	0.10	22.9
Q9	1.70	2.1	21.3
Q10	0.79	0.69	0
Q11	1.53	0.79	0

ICATED RESISTOR VALUES ARE IN
ES ARE IN MICROFARADS.

NS ARE ABBREVIATED. PREFIX
NS WITH: 1A1A1A5, 1A3A1A5,
FOR MANUAL TRANSMITTER;
IC TRANSMITTER.

NTS IN TABLE TAKEN WITH A
GROUND, NO SIGNAL INPUT,
IN NORMAL OPERATING POSI-

R MOTOROLA PT NO. 01-38568A01.

Figure 20. Transmitter Carrier Agc Board, Schematic Diagram

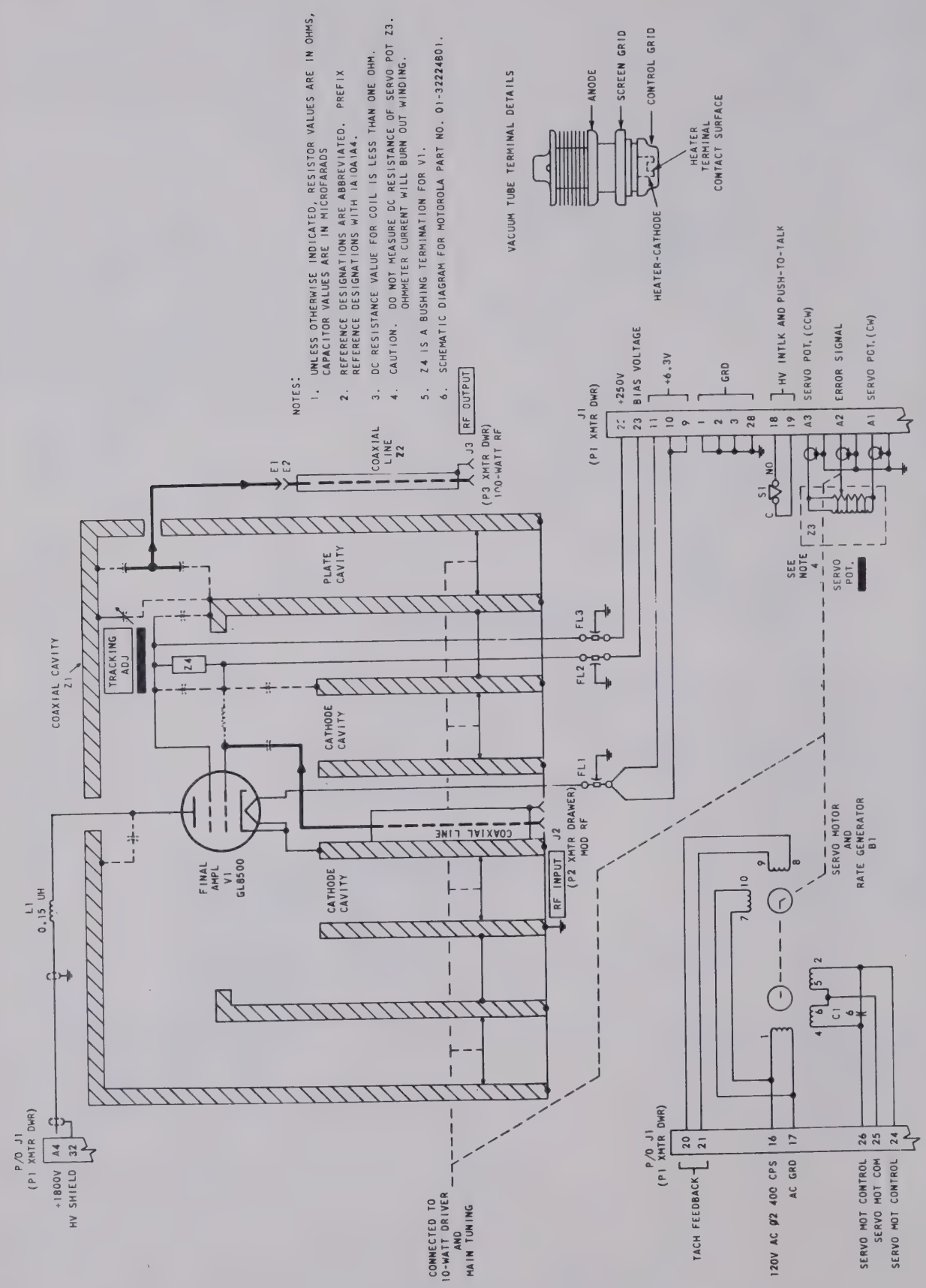
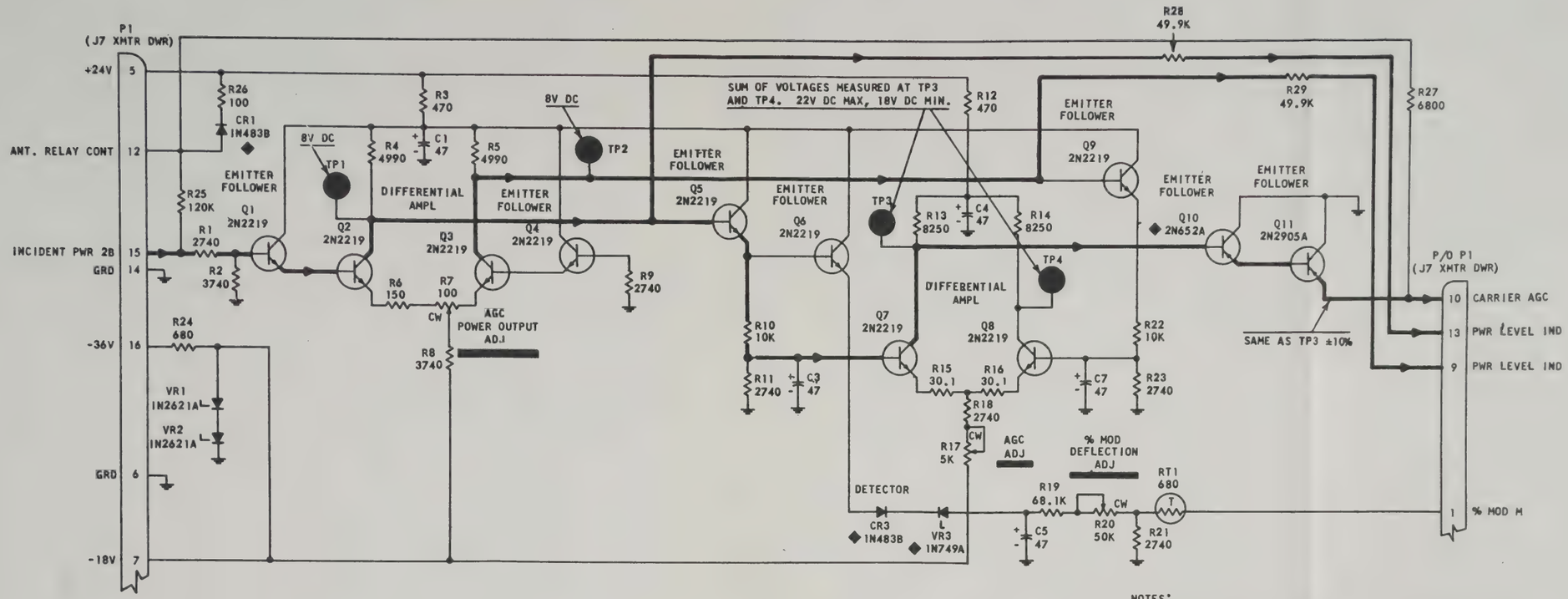
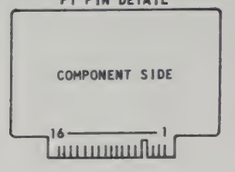


Figure 19. Automatic Transmitter Final Amplifier, Schematic Diagram



P1 PIN DETAIL



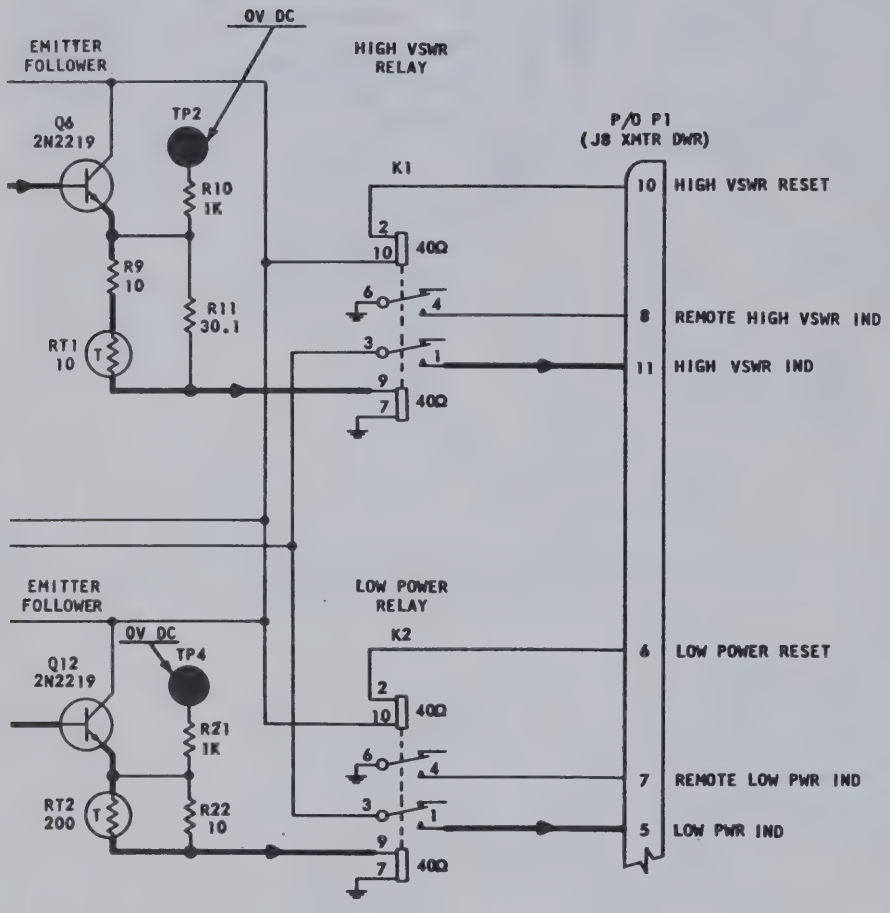
TRANSISTOR VOLTAGES

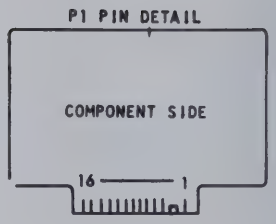
REF DES	TERMINAL		
	E	B	C
Q1	-0.46	0	21.3
Q2	-1.05	-0.46	17.6
Q3	-1.15	-0.52	2.1
Q4	-0.52	0	21.3
Q5	17.1	17.6	21.3
Q6	16.5	17.1	21.3
Q7	0.63	1.28	0.69
Q8	0.55	0.10	22.9
Q9	1.70	2.1	21.3
Q10	0.79	0.69	0
Q11	1.53	0.79	0

NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH: 1A1A1A5, 1A3A1A5, 1A13A1A5 OR 1A15A1A5 FOR MANUAL TRANSMITTER; 1A10A1A5 FOR AUTOMATIC TRANSMITTER.
3. DC VOLTAGE MEASUREMENTS IN TABLE TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT, AND ALL CONTROLS SET IN NORMAL OPERATING POSITION.
4. SCHEMATIC DIAGRAM FOR MOTOROLA PT NO. 01-3856BA01.

Figure 20. Transmitter Carrier Agc Board, Schematic Diagram





TRANSISTOR VOLTAGES

REF DES	TERMINAL		
	E	B	C
Q1	-0.5	0	14
Q2	-1.5	-0.5	14
Q3	-1.2	-0.5	3.0
Q4	-0.5	0	14
Q5	2.5	3.0	6.3
Q6	1.8	2.5	6.3
Q7	-0.5	0	12
Q8	-1.1	-0.5	-0.7
Q9	-1.0	-0.4	12
Q10	-0.4	0	12
Q11	0.75	-0.7	6.3
Q12	0.7	0.75	6.3

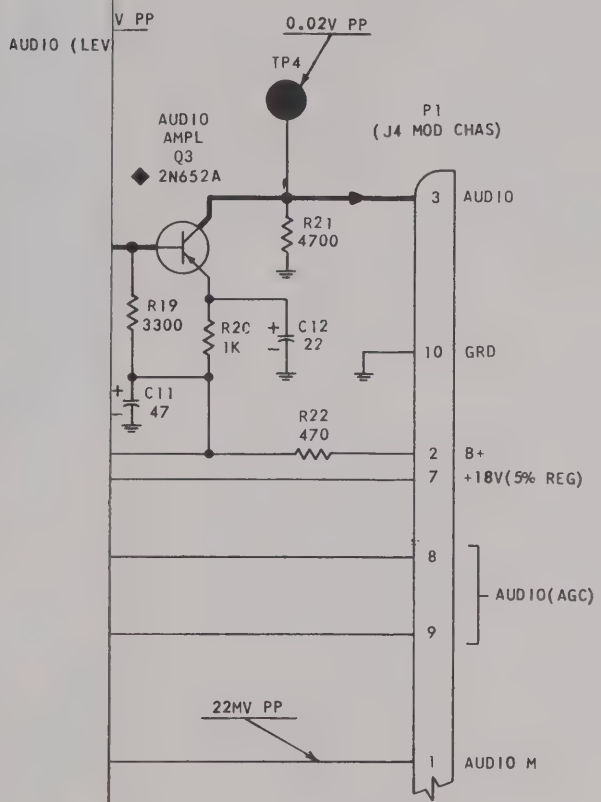
UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS.

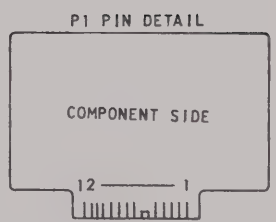
REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH: 1A1A1A6, 1A3A1A6, 1A13A1A6 OR 1A15A1A6 FOR MANUAL TRANSMITTER, 1A10A1A6 FOR AUTOMATIC TRANSMITTER.

DC VOLTAGE MEASUREMENTS IN TABLE TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT AND ALL CONTROLS SET IN NORMAL OPERATING POSITION.

SCHEMATIC DIAGRAM FOR MOTOROLA PART NUMBER 01-38569A01.

Figure 21. Transmitter Vswr and Power Monitor, Schematic Diagram





ERWISE INDICATED RESISTOR VALUES ARE IN
CITOR VALUES ARE IN MICROFARADS.

DESIGNATIONS ARE ABBREVIATED. PREFIX
DESIGNATIONS WITH: 1A1A1A2A1, 1A3A1A2A1,
OR 1A15A1A2A1 FOR MANUAL TRANSMITTER,
FOR AUTOMATIC TRANSMITTER.

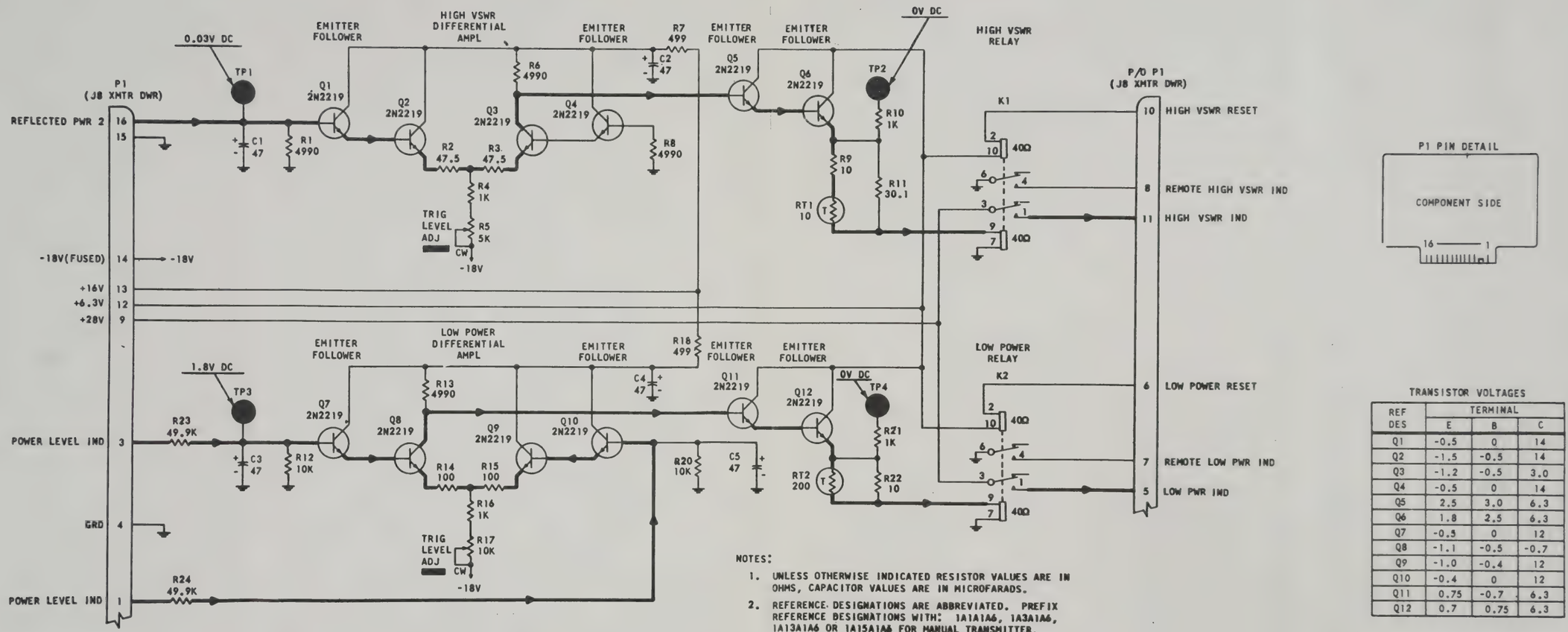
MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT
NO SIGNAL INPUT AND CONTROLS SET IN NOR-
ING POSITION.

DIAGRAM FOR MOTOROLA PART NO. 01-38563A01.

TRANSISTOR VOLTAGES

REF DES	TERMINAL		
	E	B	C
Q1	3.2	3.0	0
Q2	8.5	8.3	5.7
Q3	10.8	10.7	3.7
Q4	12.4	12.2	7.7

Figure 22. Transmitter First Modulator Amplifier, Schematic Diagram



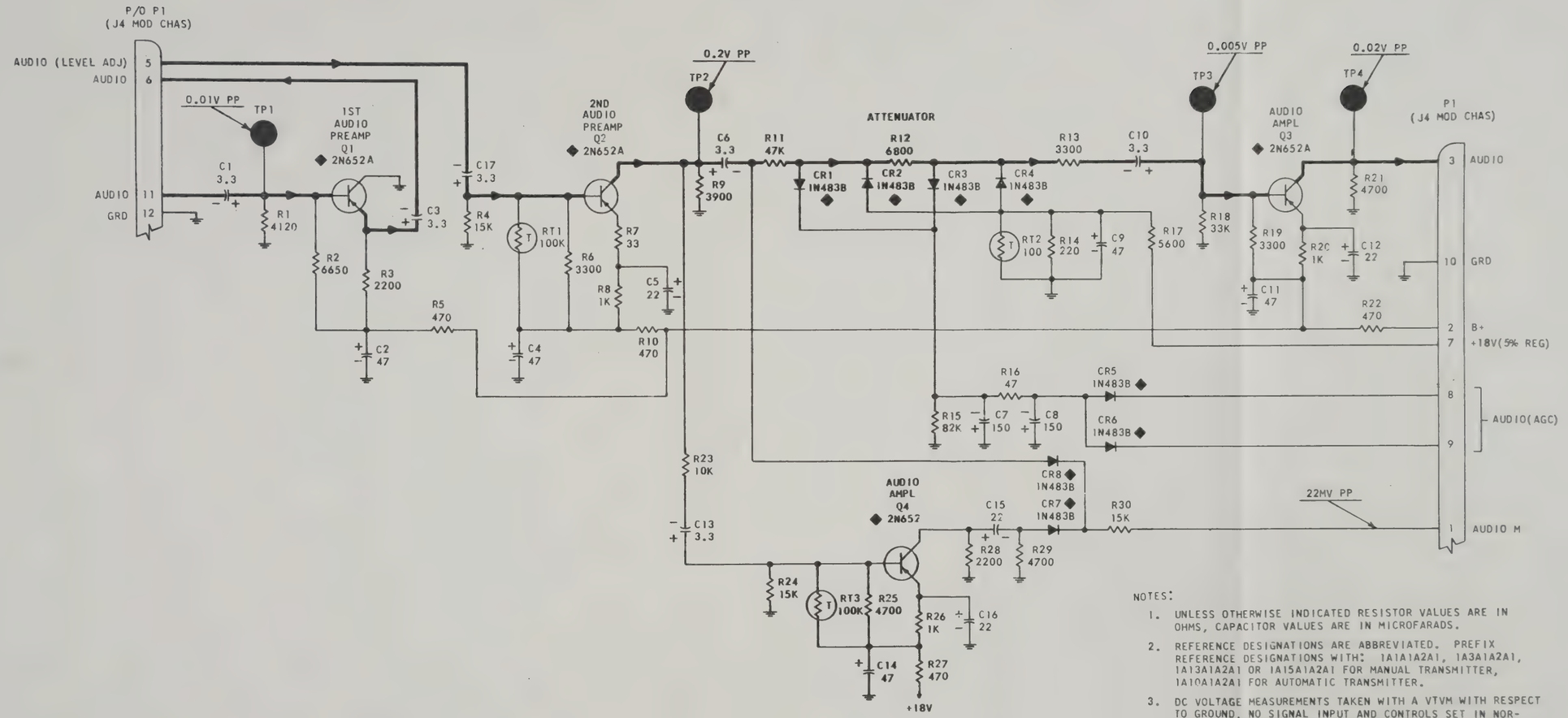
NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH: 1A1A1A6, 1A3A1A6, 1A13A1A6 OR 1A15A1A6 FOR MANUAL TRANSMITTER, 1A10A1A6 FOR AUTOMATIC TRANSMITTER.
3. DC VOLTAGE MEASUREMENTS IN TABLE TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT AND ALL CONTROLS SET IN NORMAL OPERATING POSITION.
4. SCHEMATIC DIAGRAM FOR MOTOROLA PART NUMBER 01-38569A01.

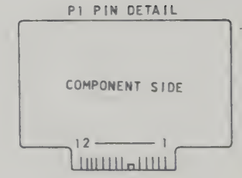
TRANSISTOR VOLTAGES

REF DES	TERMINAL		
	E	B	C
Q1	-0.5	0	14
Q2	-1.5	-0.5	14
Q3	-1.2	-0.5	3.0
Q4	-0.5	0	14
Q5	2.5	3.0	6.3
Q6	1.8	2.5	6.3
Q7	-0.5	0	12
Q8	-1.1	-0.5	-0.7
Q9	-1.0	-0.4	12
Q10	-0.4	0	12
Q11	0.75	-0.7	6.3
Q12	0.7	0.75	6.3

Figure 21. Transmitter Vswr and Power Monitor, Schematic Diagram



P1 PIN DETAIL



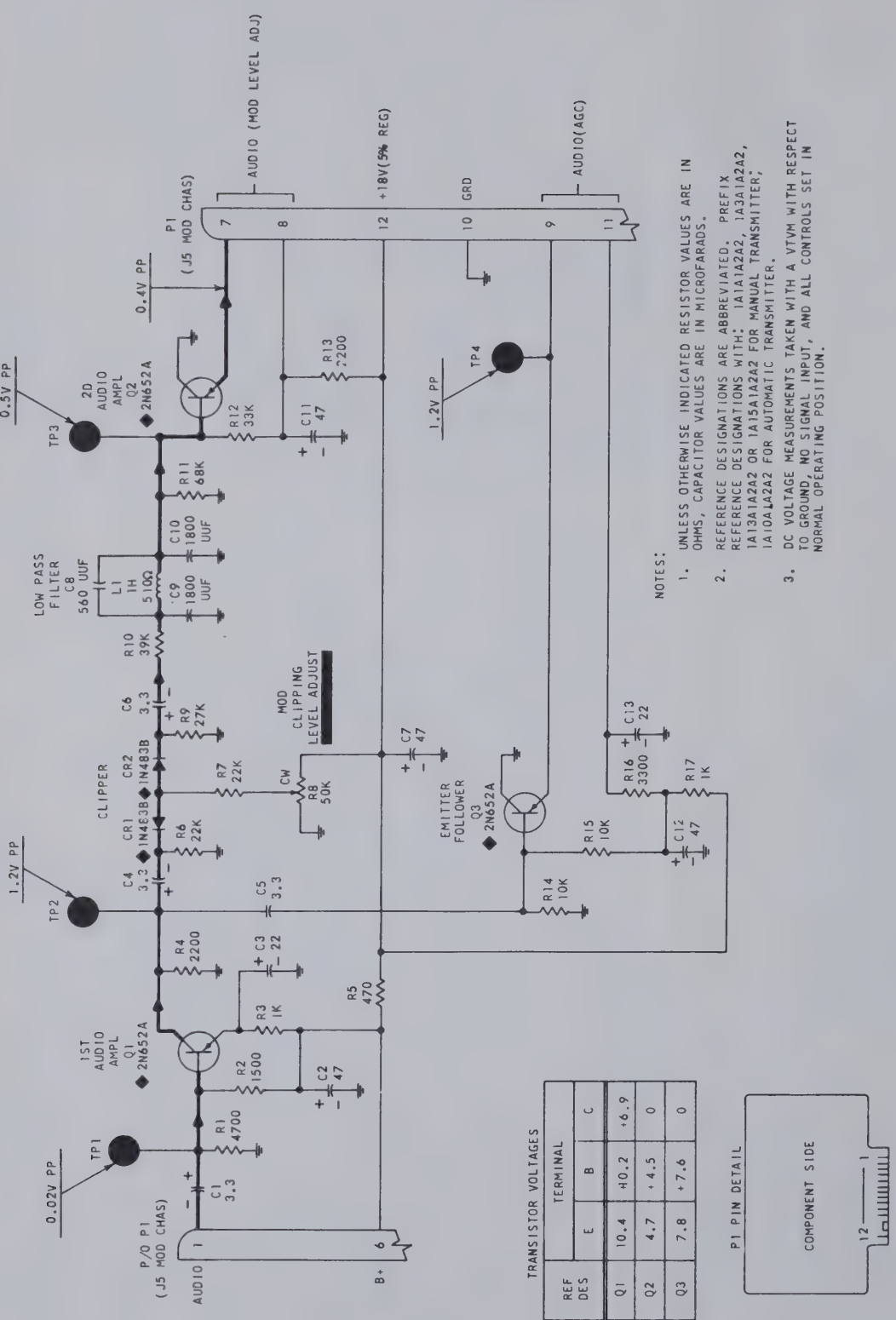
NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH: 1A1A1A2A1, 1A3A1A2A1, 1A13A1A2A1 OR 1A15A1A2A1 FOR MANUAL TRANSMITTER, 1A10A1A2A1 FOR AUTOMATIC TRANSMITTER.
3. DC VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT AND CONTROLS SET IN NORMAL OPERATING POSITION.
4. SCHEMATIC DIAGRAM FOR MOTOROLA PART NO. 01-38563A01.

TRANSISTOR VOLTAGES

REF DES	TERMINAL		
	E	B	C
Q1	3.2	3.0	0
Q2	8.5	8.3	5.7
Q3	10.8	10.7	3.7
Q4	12.4	12.2	7.7

Figure 22. Transmitter First Modulator Amplifier, Schematic Diagram



NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH: 1A1A1A2A2, 1A3A1A2A2, 1A13A1A2A2 OR 1A15A1A2A2 FOR MANUAL TRANSMITTER; 1A10A1A2A2 FOR AUTOMATIC TRANSMITTER.
3. DC VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT, AND ALL CONTROLS SET IN NORMAL OPERATING POSITION.

TRANSISTOR VOLTAGES

REF DES	TERMINAL E	B	C
Q1	10.4	+0.2	+6.9
Q2	4.7	+4.5	0
Q3	7.8	+7.6	0

P1 PIN DETAIL

Figure 23. Transmitter Second Modulator Amplifier, Schematic Diagram

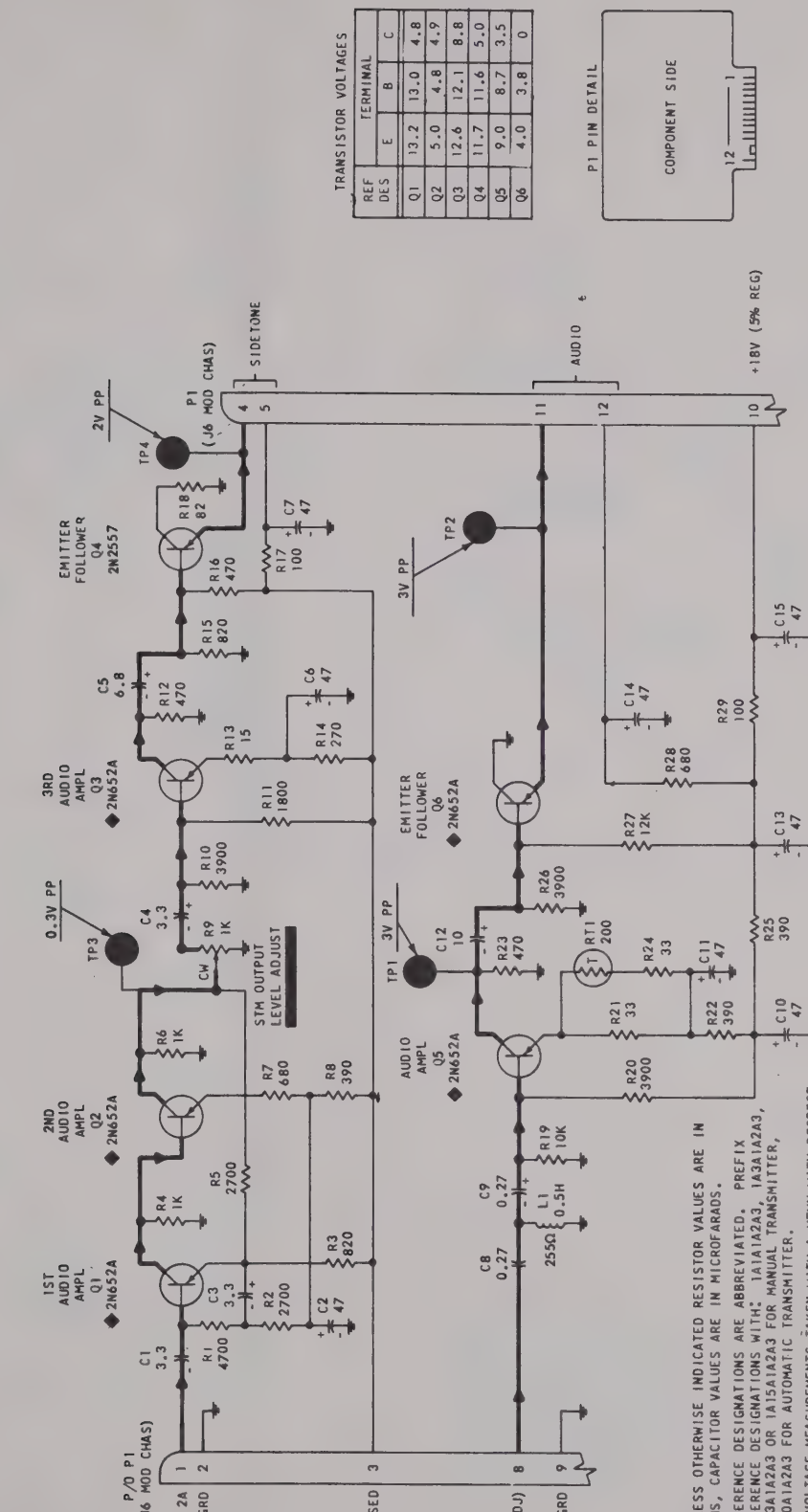
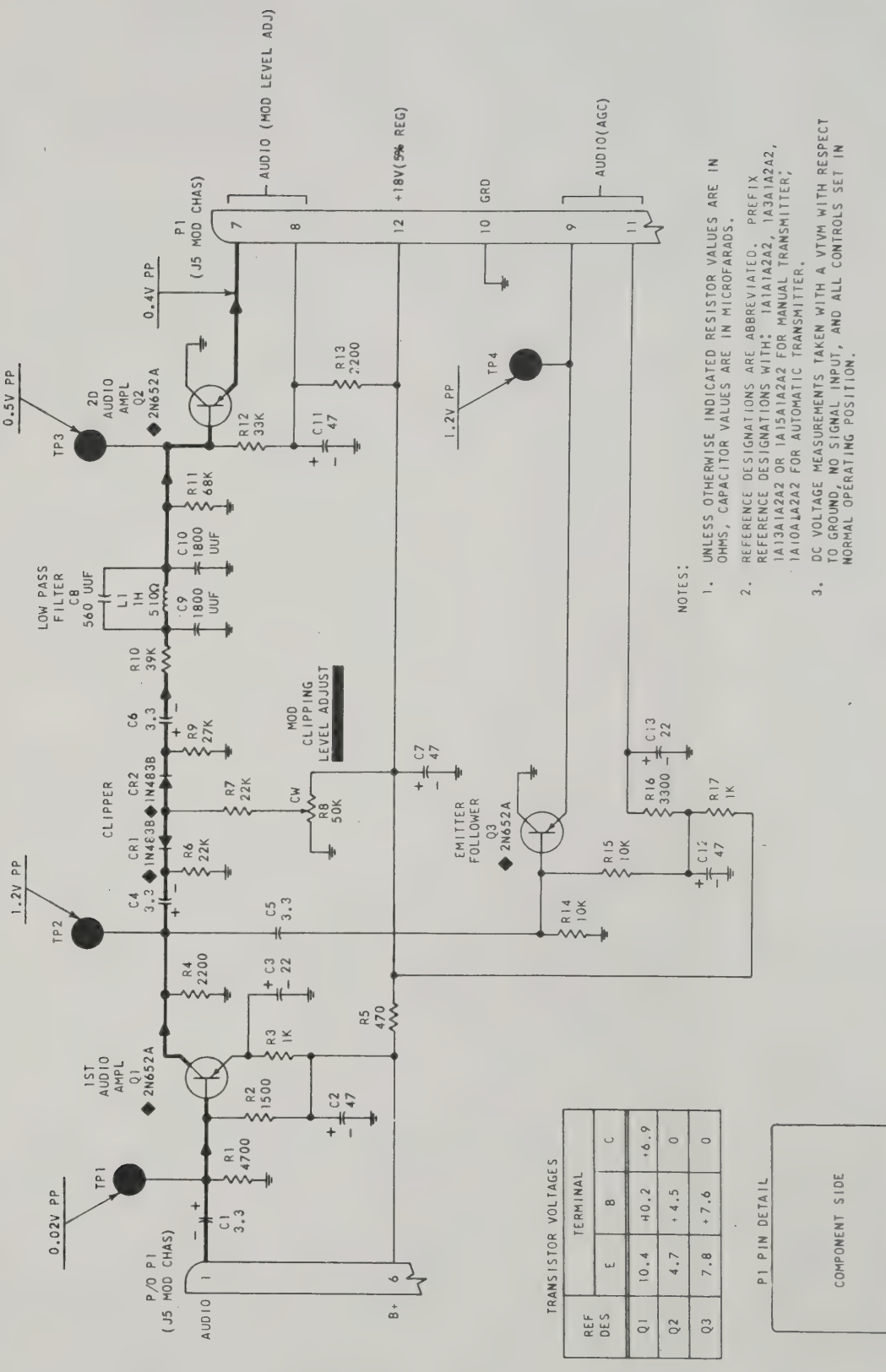


Figure 24. Transmitter Sidetone Monitor and Modulator Driver, Schematic Diagram



NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH: 1A1A1A2A2, 1A3A1A2A2, 1A13A1A2A2 OR 1A15A1A2A2 FOR MANUAL TRANSMITTER; 1A10A1A2A2 FOR AUTOMATIC TRANSMITTER.
3. DC VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT, AND ALL CONTROLS SET IN NORMAL OPERATING POSITION.

TRANSISTOR VOLTAGES

REF DES	TERMINAL E	B	C
Q1	10.4	+0.2	+6.9
Q2	4.7	+4.5	0
Q3	7.8	+7.6	0

P1 PIN DETAIL

Figure 23. Transmitter Second Modulator Amplifier, Schematic Diagram

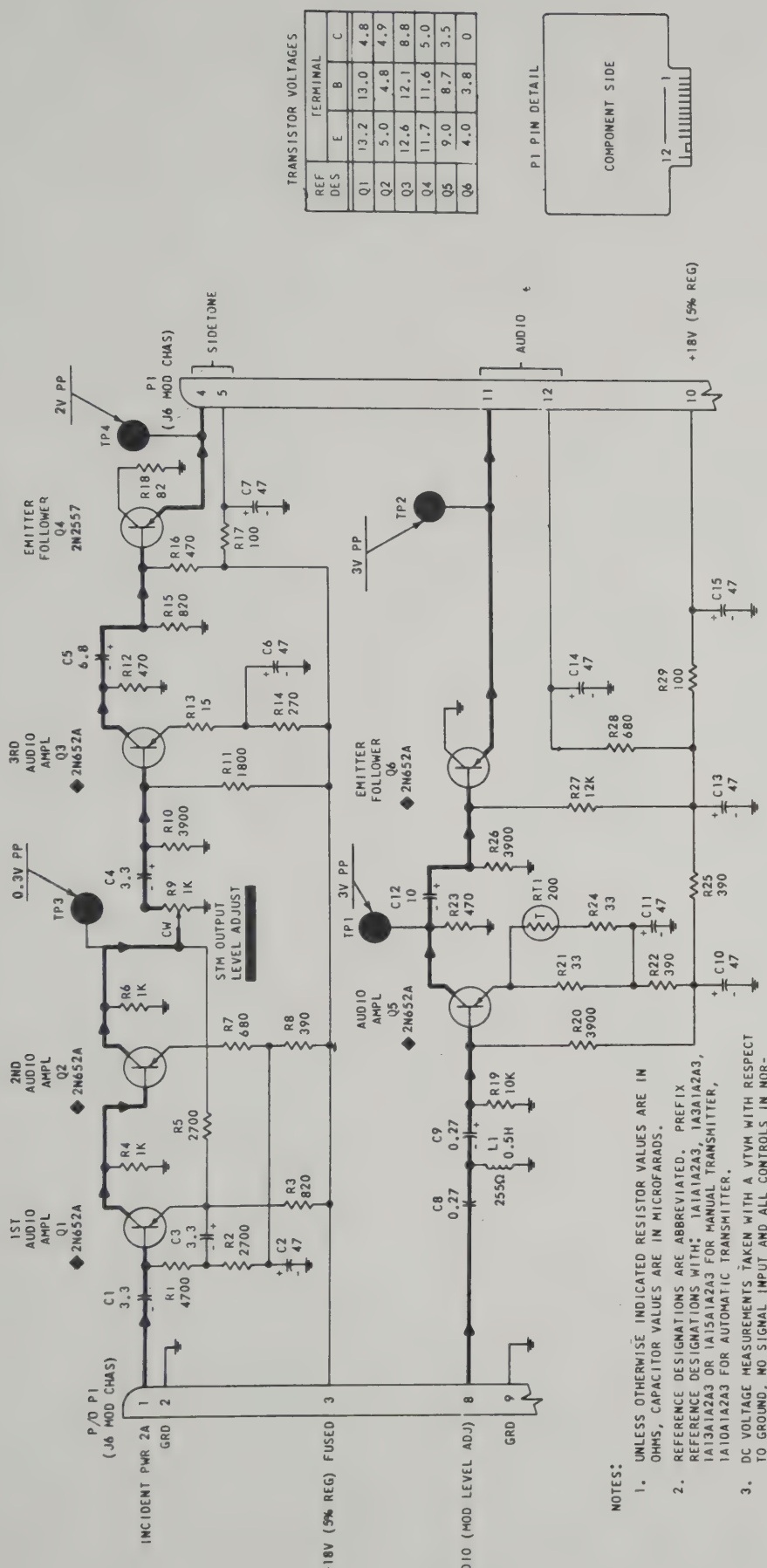
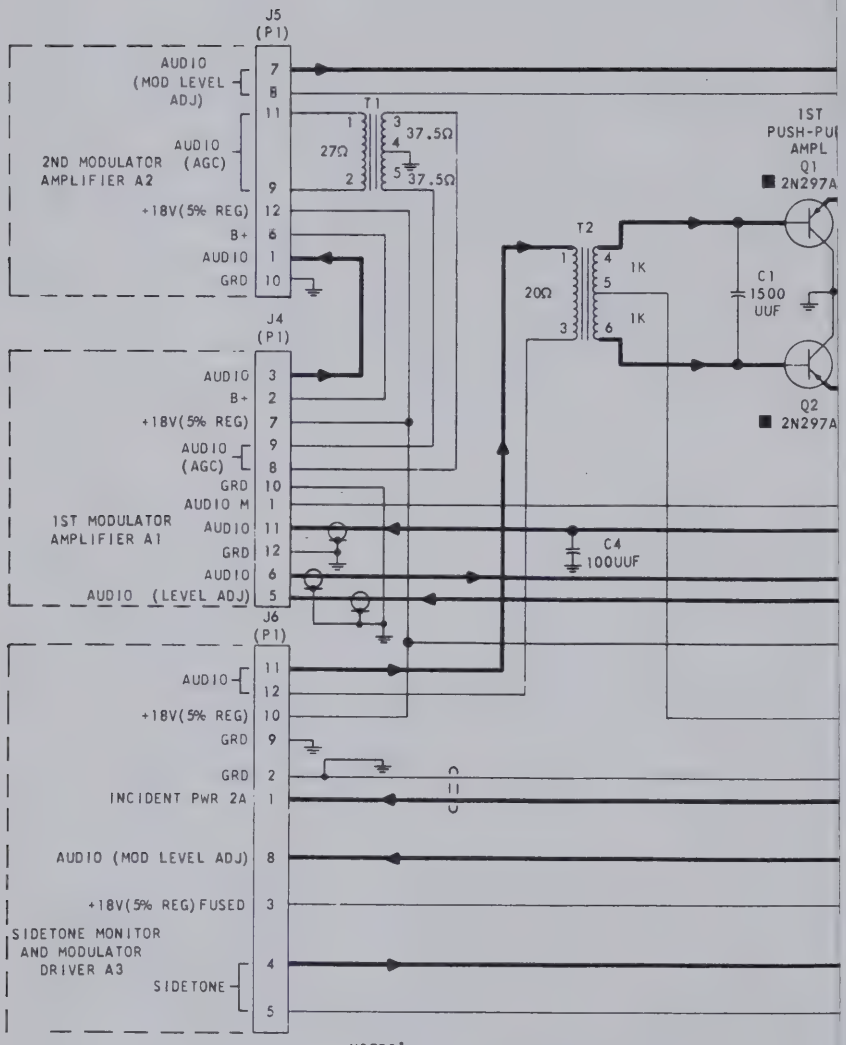


Figure 24. Transmitter Sidetone Monitor and Modulator Driver, Schematic Diagram



NOTES:

1. , UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE OHMS, CAPACITOR VALUES ARE IN MICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFI REFERENCE DESIGNATIONS WITH: 1A1A1A2, 1A3A1A2 1A13A1A2 OR 1A15A1A2 FOR MANUAL TRANSMITTER; 1A10A1A2 FOR AUTOMATIC TRANSMITTER.
3. DC RESISTANCE VALUES FOR COILS AND TRANSFORMER OF LESS THAN ONE OHM ARE OMITTED.
4. DC VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH SPECT TO GROUND, NO SIGNAL INPUT AND ALL CONTR SET IN NORMAL OPERATING POSITION.
5. SCHEMATIC DIAGRAM FROM MOTOROLA PART NO 01-3183

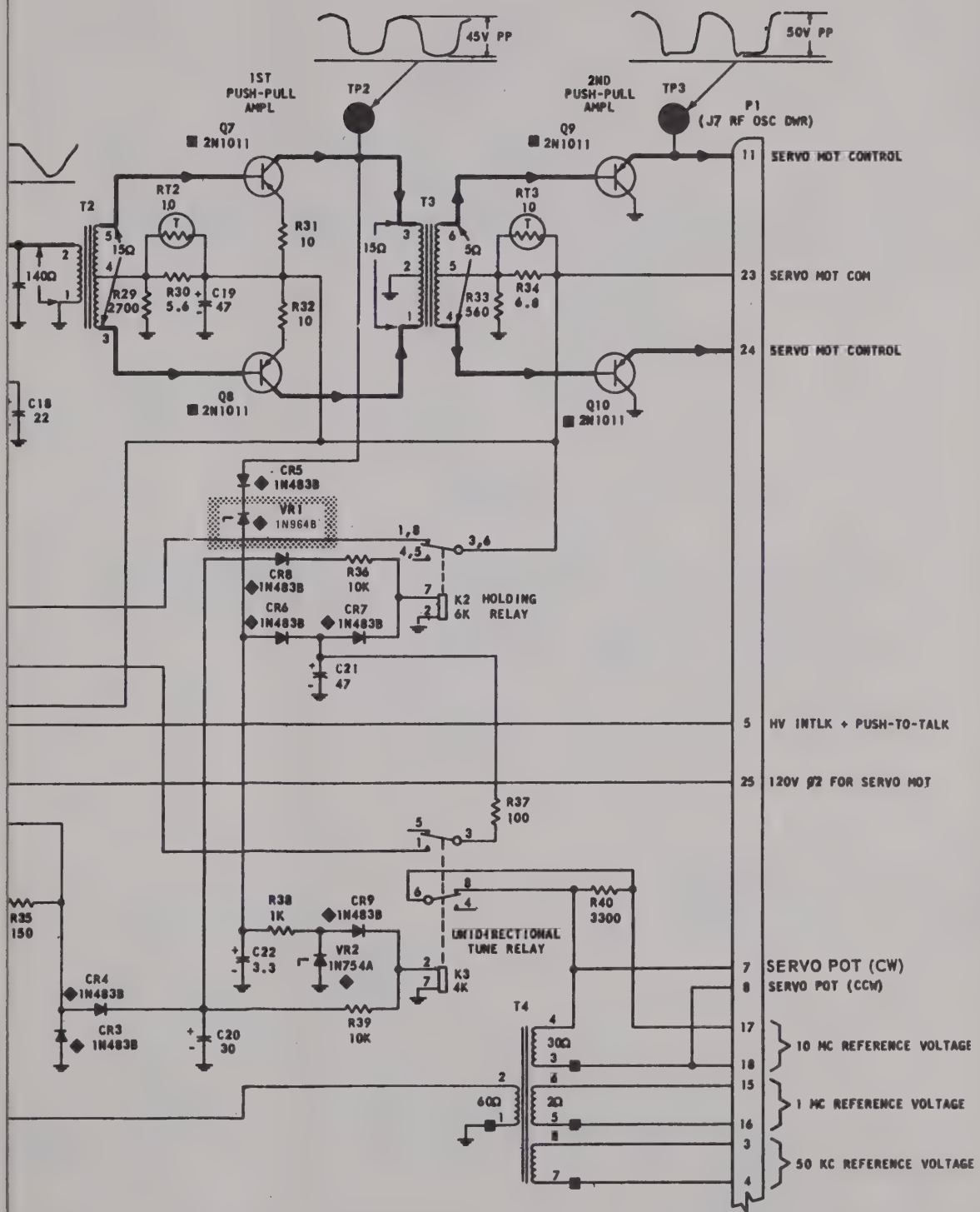
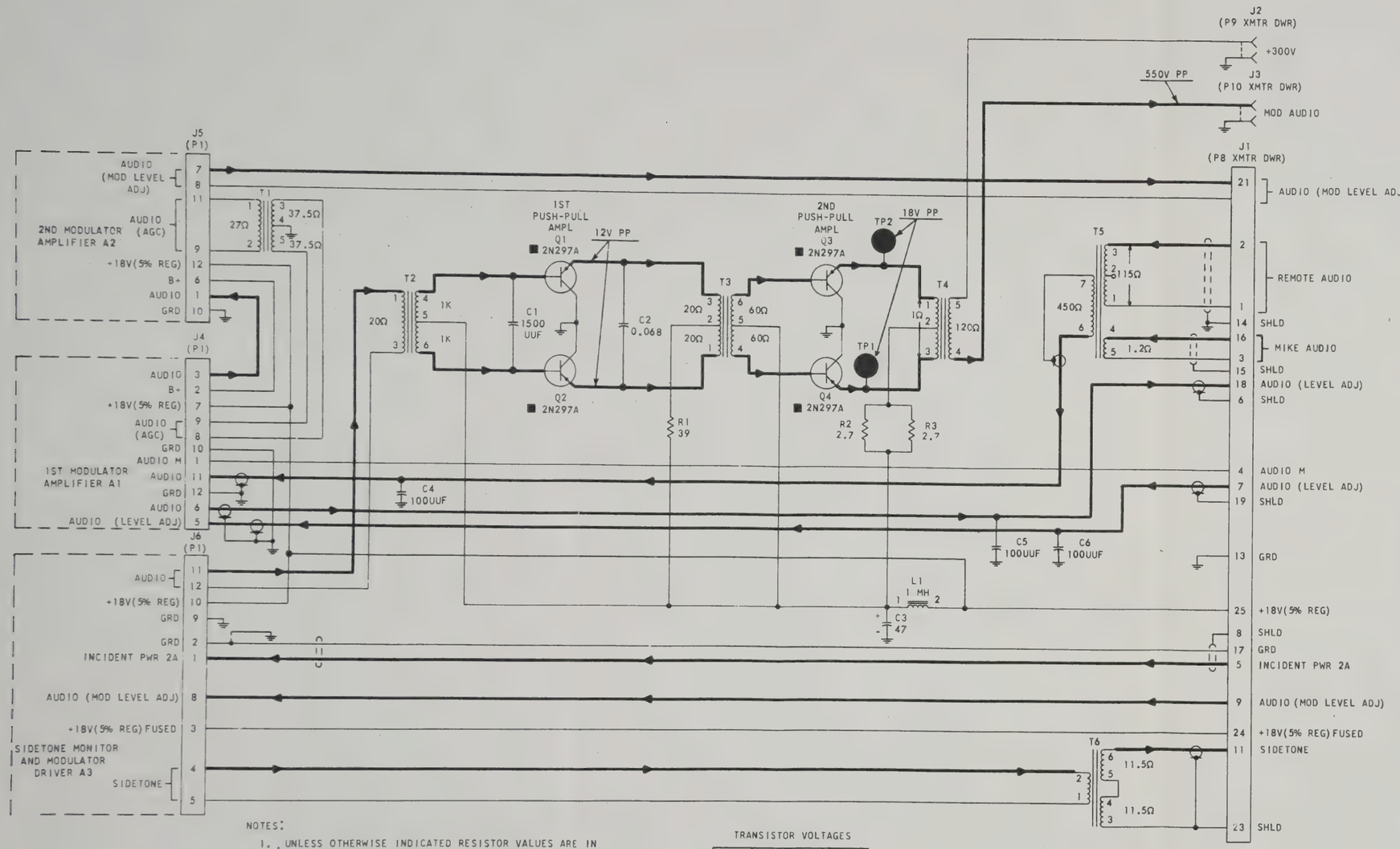


Figure 26. Transmitter Servo Amplifier, Schematic Diagram



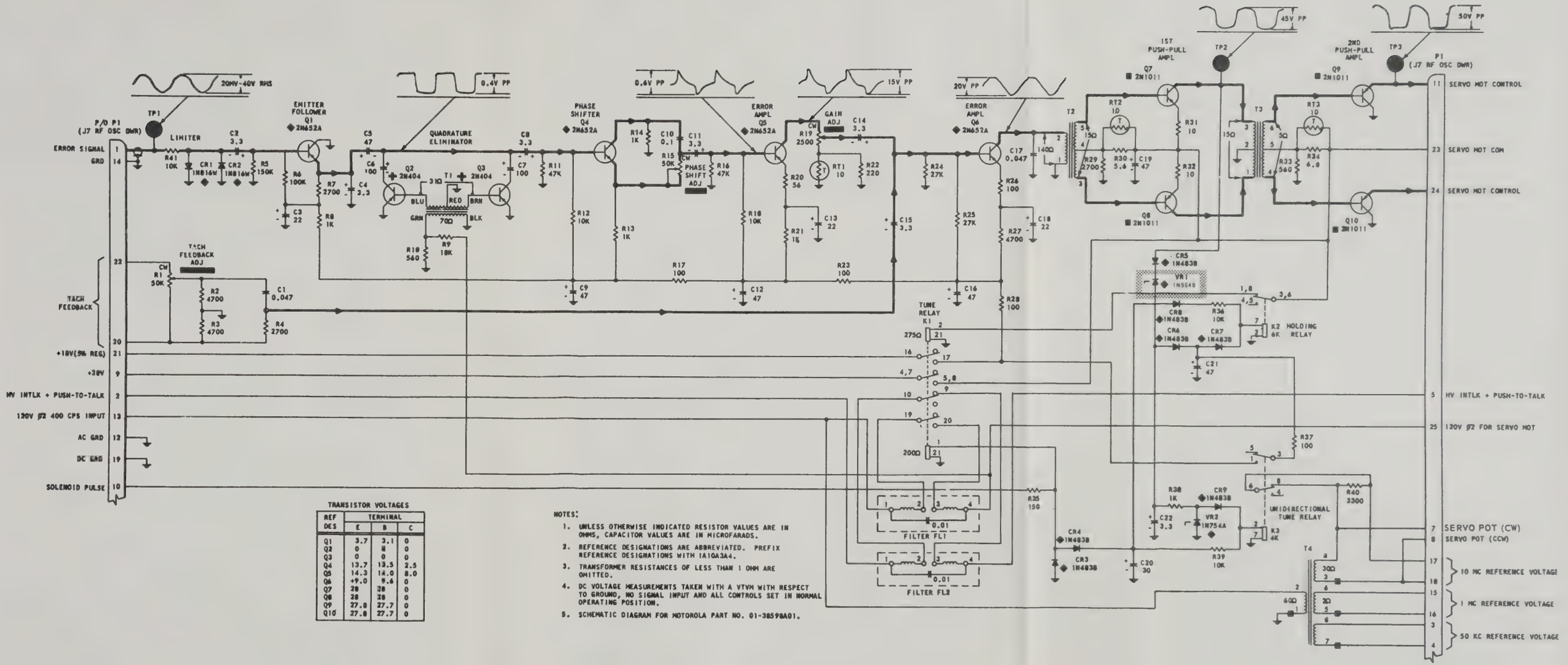
NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH: 1A1A1A2, 1A3A1A2, 1A13A1A2 OR 1A15A1A2 FOR MANUAL TRANSMITTER; 1A10A1A2 FOR AUTOMATIC TRANSMITTER.
3. DC RESISTANCE VALUES FOR COILS AND TRANSFORMERS OF LESS THAN ONE OHM ARE OMITTED.
4. DC VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT AND ALL CONTROLS SET IN NORMAL OPERATING POSITION.
5. SCHEMATIC DIAGRAM FROM MOTOROLA PART NO 01-31833B01

TRANSISTOR VOLTAGES

REF DES	TERMINALS		
	E	B	C
Q1	17.5	17.4	0
Q2	17.5	17.4	0
Q3	17.6	17.5	0
Q4	17.6	17.5	0

Figure 25. Transmitter Modulator Chassis, Schematic Diagram



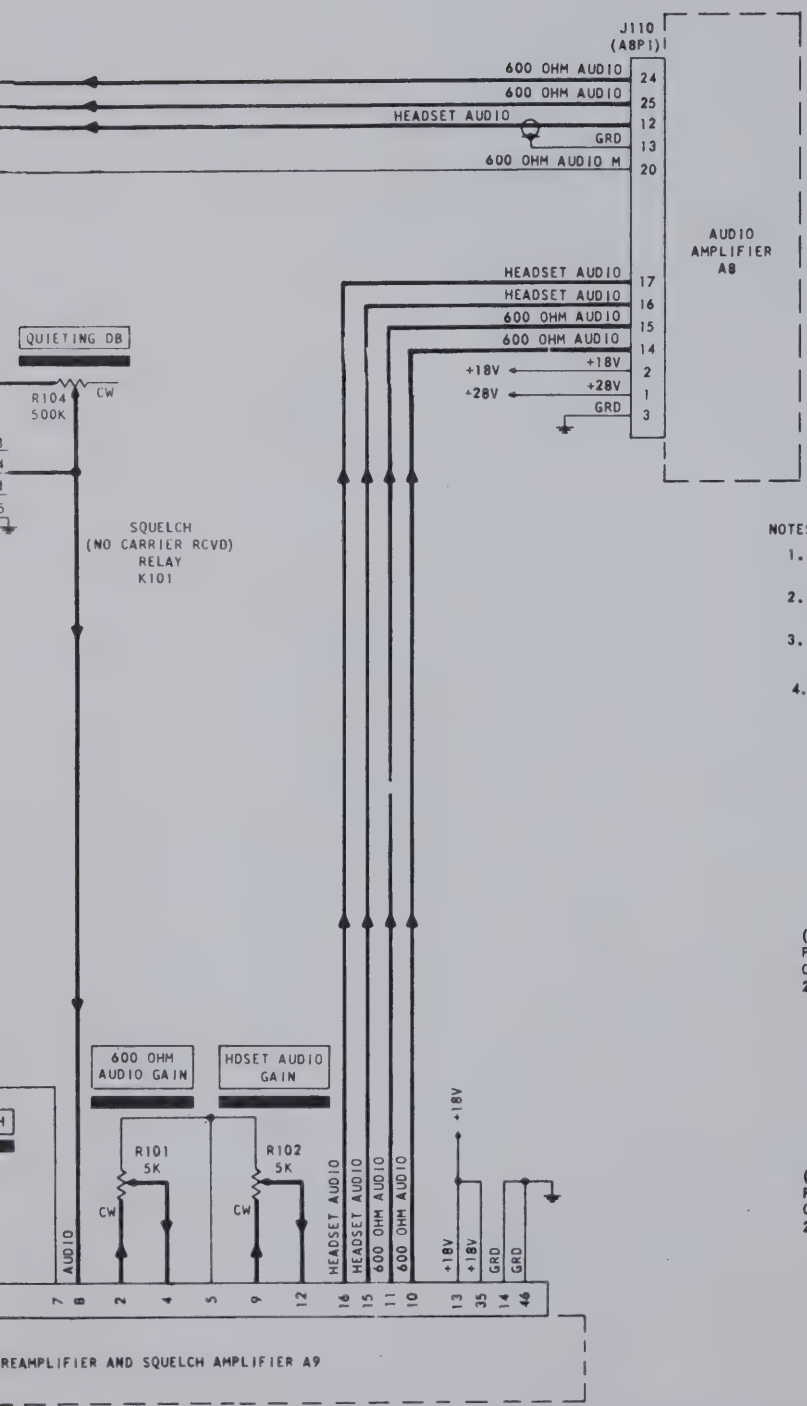
TRANSISTOR VOLTAGES

REF DES	TERMINAL E	B	C
Q1	3.7	3.1	0
Q2	0	0	0
Q3	0	0	0
Q4	13.7	13.5	2.5
Q5	14.3	14.0	8.0
Q6	+9.0	9.6	0
Q7	28	28	0
Q8	28	28	0
Q9	27.8	27.7	0
Q10	27.8	27.7	0

NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH 1A10A3A4.
3. TRANSFORMER RESISTANCES OF LESS THAN 1 OHM ARE OMITTED.
4. DC VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT AND ALL CONTROLS SET IN NORMAL OPERATING POSITION.
5. SCHEMATIC DIAGRAM FOR MOTOROLA PART NO. 01-38598A01.

Figure 26. Transmitter Servo Amplifier, Schematic Diagram

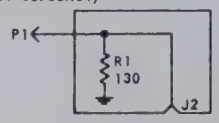


NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS AND CAPACITOR VALUES IN MICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH 1A2, 1A4, 1A14, OR 1A16.
3. WAFER C OF S102 IS USED FOR CONNECTION POINTS ONLY.
4. SCHEMATIC DIAGRAM FOR MOTOROLA PART NO. 01-31838801.

DETAIL A

(BANDPASS COMPENSATOR MOTOROLA PART NO. 01-33346B01 USED WITH CRYSTAL FILTER MOTOROLA PART NO. 24-38766A01)



DETAIL B

(BANDPASS COMPENSATOR MOTOROLA PART NO. 01-33346B02 USED WITH CRYSTAL FILTER MOTOROLA PART NO. 24-38766A02)

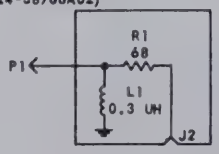
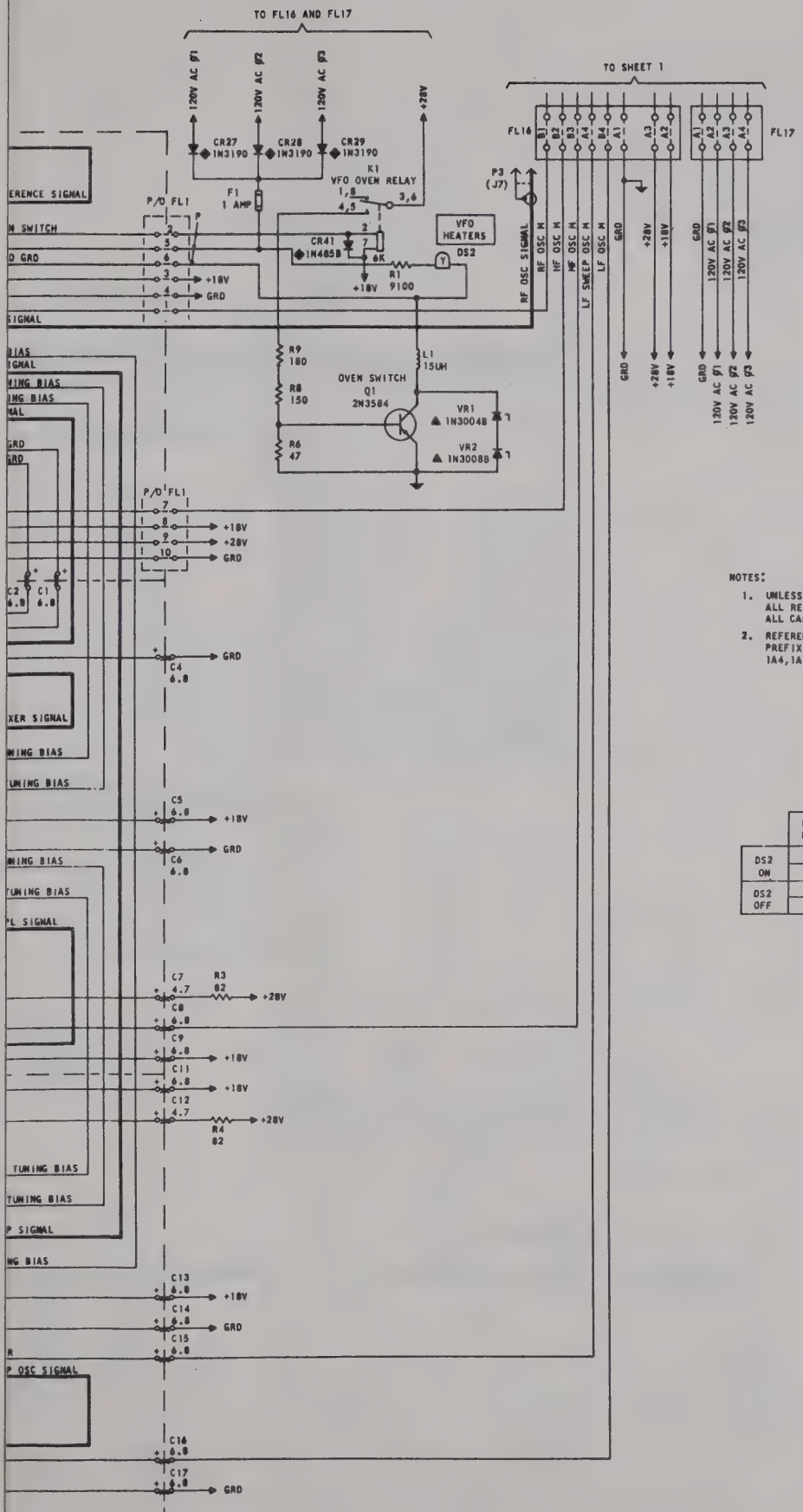


TABLE 1
SWITCH POSITIONS OF METER SELECT SWITCH S102

POSITION	LABELED
1	28V DC
2	18V DC
3	AGC
4	RF MIX CUR
5	1ST IF
6	AUDIO
7	RFO
8	SW OSC
9	HF OSC
10	MF OSC
11	LF OSC
12	(WIPER)

Figure 27. Manual Receiver Drawer, Schematic Diagram (Sheet 1 of 2)



NOTES:

1. UNLESS OTHERWISE INDICATED, ALL RESISTOR VALUES ARE IN OHMS, ALL CAPACITOR VALUES ARE IN MICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH 1A2, 1A4, 1A14, OR 1A16.

TABLE 1.
TRANSISTOR VOLTAGES

	REF DES	TERMINAL		
		E	B	C
DS2 ON	Q1	0	.60	.90
DS2 OFF	Q1	0	0	160

Figure 27. Manual Receiver Drawer, Schematic Diagram (Sheet 2 of 2)

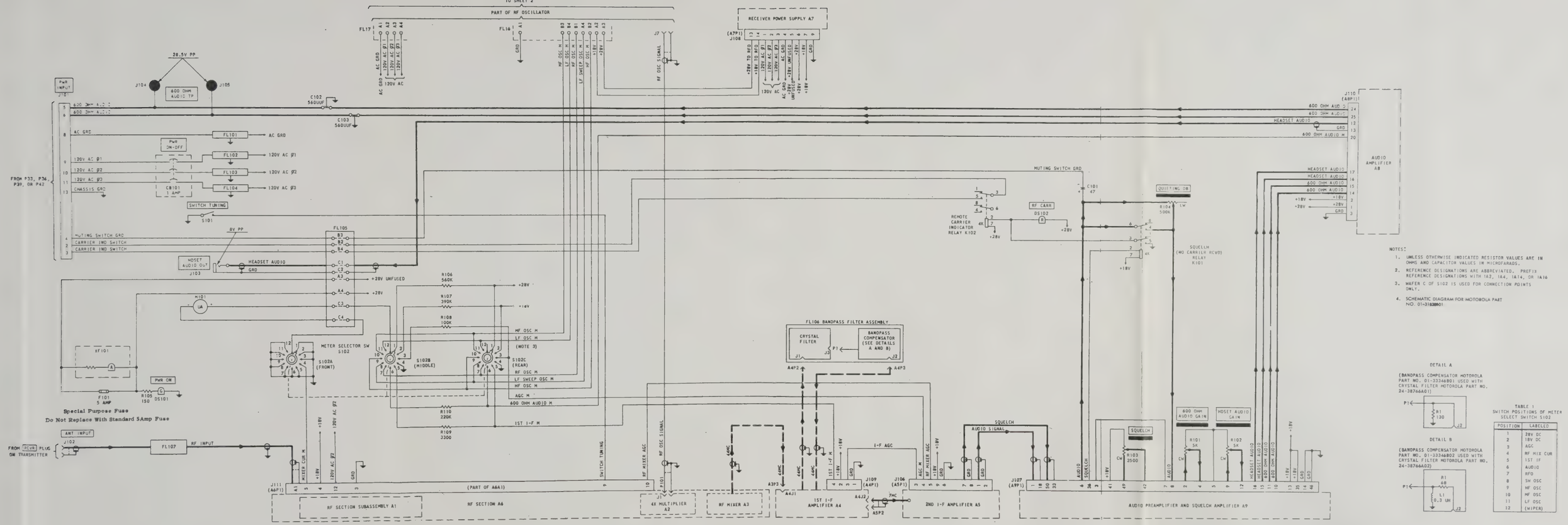
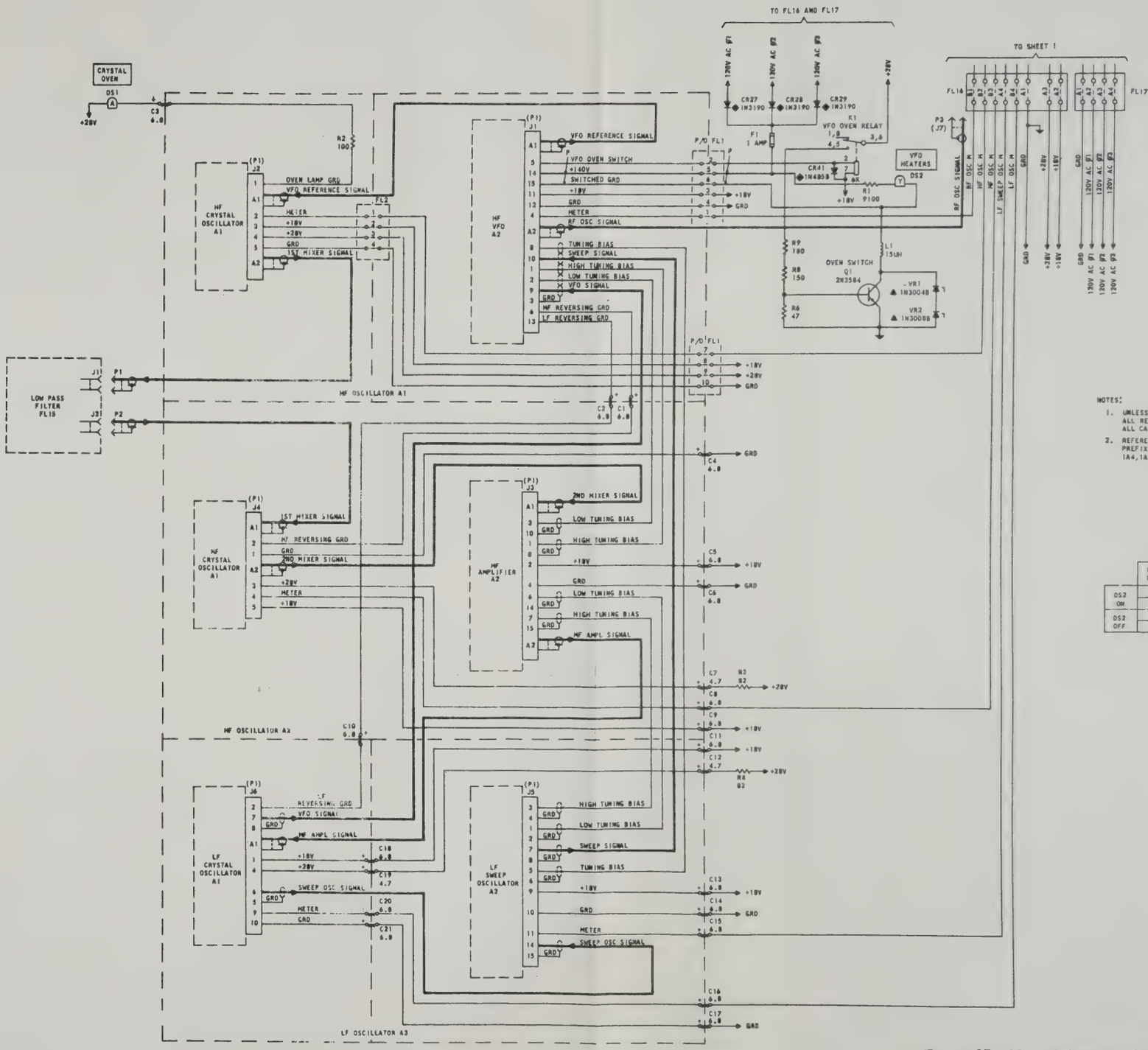


Figure 27. Manual Receiver Drawer, Schematic Diagram (Sheet 1 of 2)



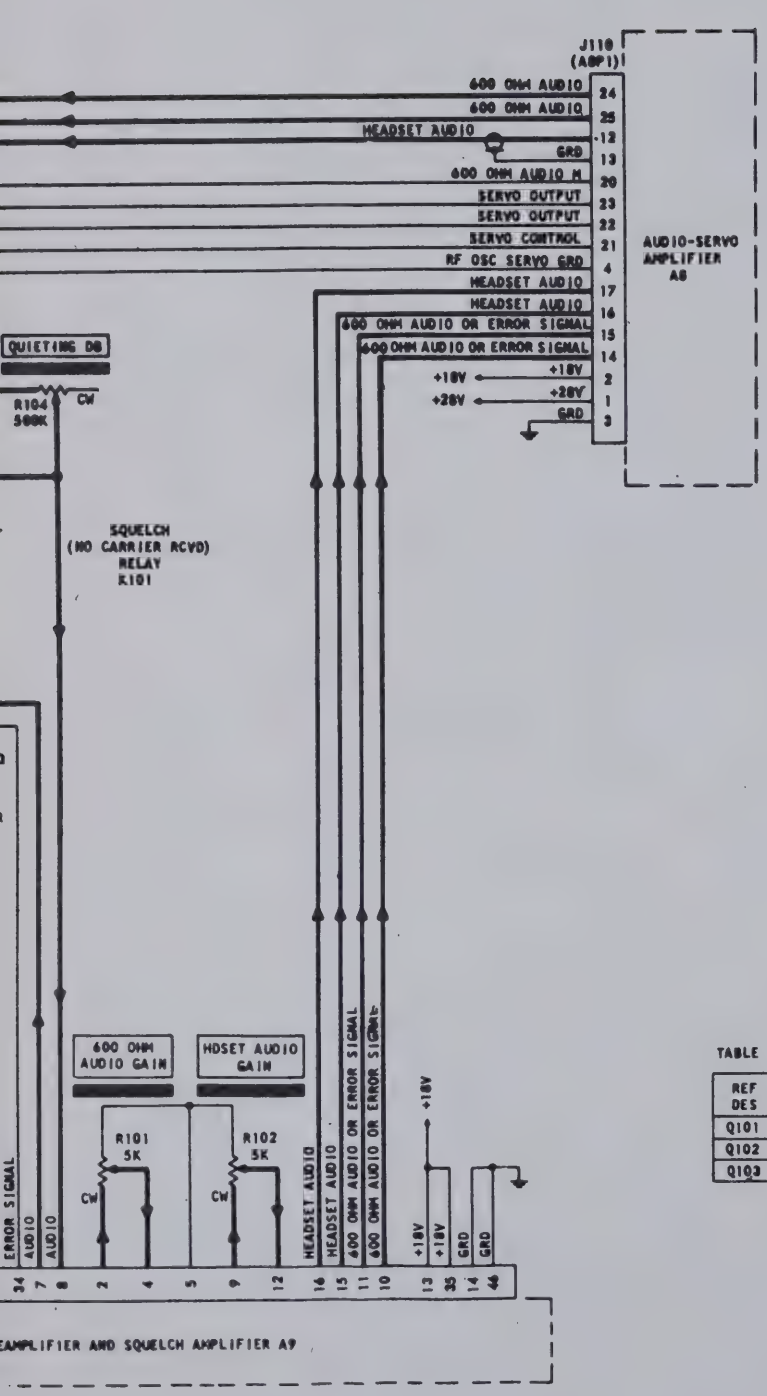
NOTES:

1. UNLESS OTHERWISE INDICATED, ALL RESISTOR VALUES ARE IN OHMS, ALL CAPACITOR VALUES ARE IN MICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH 1A2, 1A4, 1A14, OR 1A16.

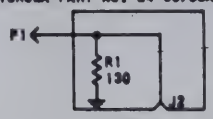
TABLE 1. TRANSISTOR VOLTAGES

	REF DES	TERMINAL E	TERMINAL B	TERMINAL C
DS2 ON	Q1	0	.60	.90
DS2 OFF	Q1	0	0	140

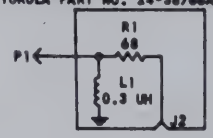
Figure 27. Manual Receiver Drawer, Schematic Diagram (Sheet 2 of 2)



DETAIL A
(BANDPASS COMPENSATOR MOTOROLA PART NO. 01-33346B01 USED WITH CRYSTAL FILTER MOTOROLA PART NO. 24-38766A01)



DETAIL B
(BANDPASS COMPENSATOR MOTOROLA PART NO. 01-33346B02 USED WITH CRYSTAL FILTER MOTOROLA PART NO. 24-38766A02)



NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS AND CAPACITOR VALUES IN MICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH 1A11.
3. WAFER C OF S102 IS USED FOR CONNECTION POINTS ONLY.
4. VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT, AND ALL CONTROLS SET IN NORMAL OPERATING POSITION.
5. TRANSFORMER RESISTANCES OF LESS THAN 1 OHM ARE OMITTED.
6. SWITCHES AND SOLENOIDS SHOWN IN MAXIMUM CCW POSITION. ALL SCHEMATIC SWITCH REPRESENTATIONS ROTATE CW EXCEPT THOSE INDICATED WITH CCW ARROW.
7. SWITCHES SHOWN VIEWED FROM CONTROL KNOB (SECTION 1-FRONT NEAREST KNOB) UNLESS OTHERWISE NOTED. SOLENOIDS SHOWN VIEWED FROM END OPPOSITE ACTUATOR (SECTION A-FRONT FARTHEST FROM ACTUATOR). SOLENOIDS K4,K5,K6, AND K7 OPERATED IN CONJUNCTION WITH CHANNEL SELECTOR SWITCHES. SEE TABLE 5 AND SWITCH DETAILS.
8. CONNECTIONS IN TRUNK CABLE BETWEEN PRESELECTOR SWITCH AND SECTIONS A, B, AND C OF K4 MAY BE DETERMINED FROM TABLE 4.
9. SCHEMATIC DIAGRAM FOR MOTOROLA PART NO. 01-31844B01.

TABLE 2. TRANSISTOR VOLTAGES

REF DES	TERMINAL		
	E	B	C
Q101	3.7	3.1	0
Q102	0	0	0
Q103	0	0	0

TABLE 1
SWITCH POSITIONS OF METER SELECT SWITCH S102

POSITION	LABELED
1	28V DC
2	18V DC
3	AGC
4	RF MIX CUR
5	1ST IF
6	AUDIO
7	RFO
8	SW OSC
9	HF OSC
10	HF OSC
11	LF OSC
12	(WIPER)

Figure 28. Automatic Receiver Drawer, Schematic Diagram (Sheet 1 of 3)

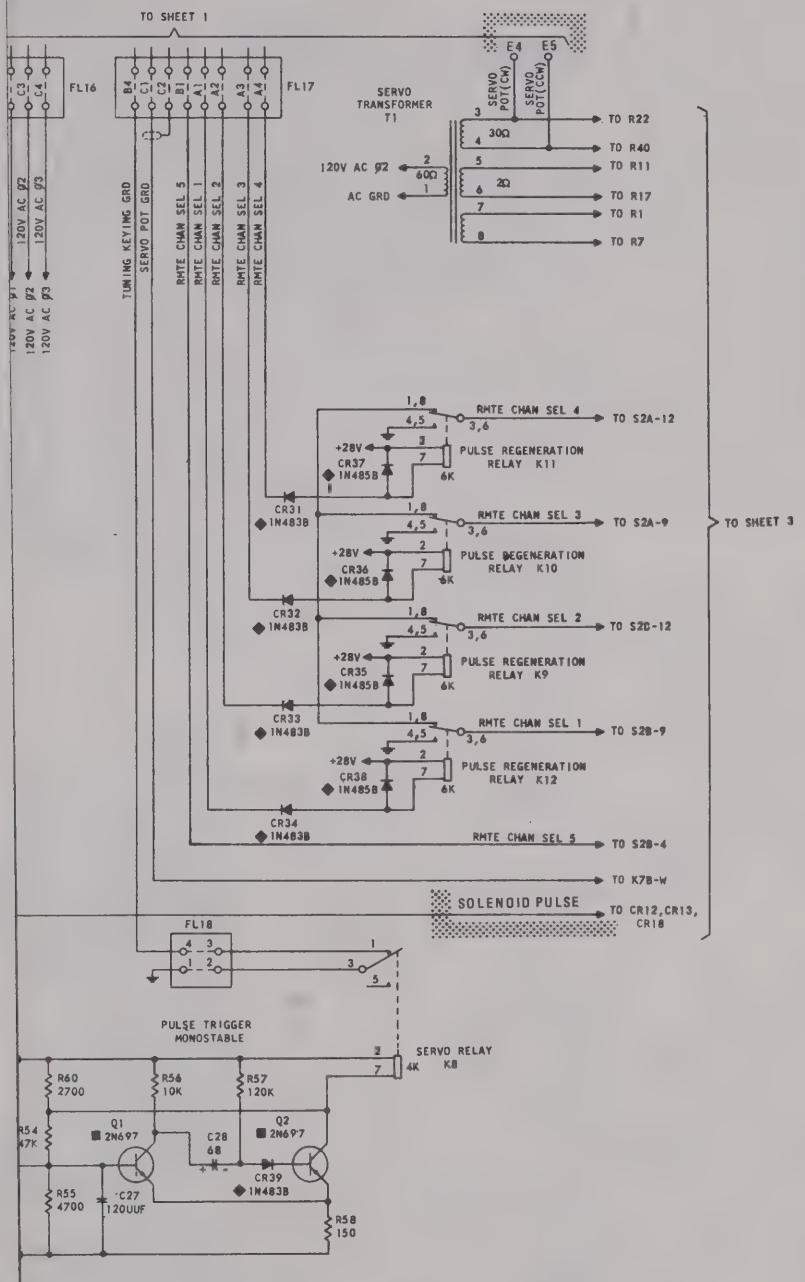
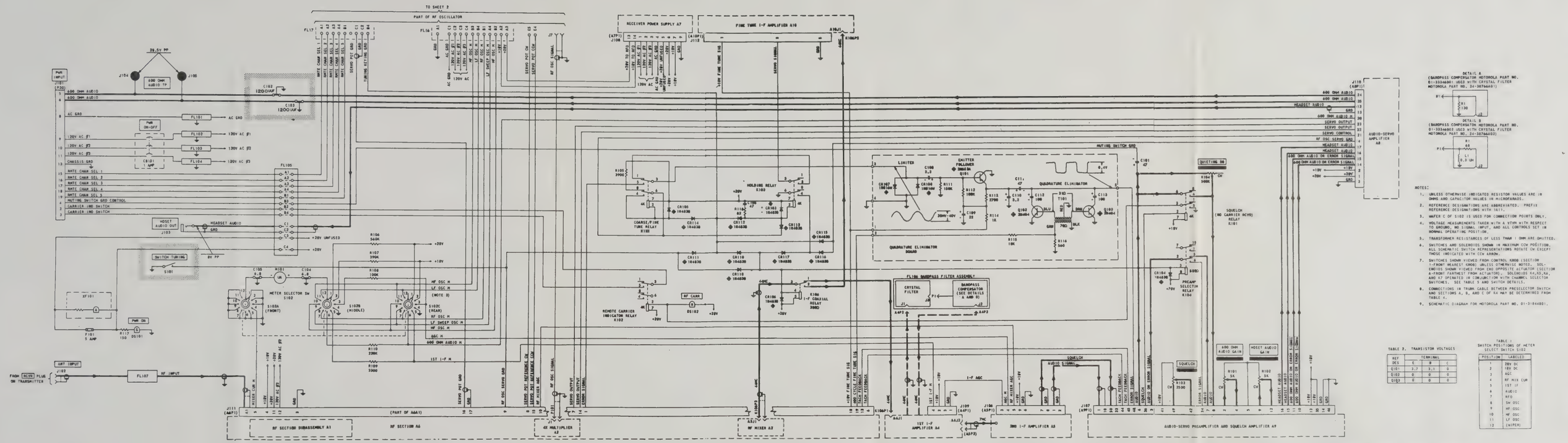


TABLE 3.
TRANSISTOR VOLTAGES

	REF DES	TERMINAL		
		E	B	C
	Q1	0.65	0.62	18
	Q2	0.65	0.68	1
DS2 OFF	Q3	0	0	160
DS2 ON	Q3	0	.60	.90

Figure 28.. Automatic Receiver Drawer, Schematic Diagram (Sheet 2 of 3)



NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS AND CAPACITOR VALUES IN MICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH 'A1'.
3. WAFER C OF S102 IS USED FOR CONNECTION POINTS ONLY.
4. VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT, AND ALL CONTROLS SET IN NORMAL OPERATING POSITION.
5. TRANSFORMER RESISTANCES OF LESS THAN 1 OHM ARE OMITTED.
6. SWITCHES AND SOLENOIDS SHOWN IN MAXIMUM CCW POSITION. ALL SCHEMATIC SWITCH REPRESENTATIONS ROTATE CW EXCEPT THOSE INDICATED WITH CCW ARROW.
7. SWITCHES SHOWN VIEWED FROM CONTROL KNOB (SECTION 1-FRONT NEAREST KNOB) UNLESS OTHERWISE NOTED. SOLENOIDS SHOWN VIEWED FROM END OPPOSITE ACTUATOR (SECTION A-FRONT FARTHEST FROM ACTUATOR). SOLENOIDS K4,K5,K6, AND K7 OPERATED IN CONJUNCTION WITH CHANNEL SELECTOR SWITCHES. SEE TABLE B AND SWITCH DETAILS.
8. CONNECTIONS IN TRUNK CABLE BETWEEN PRESELECTOR SWITCH AND SECTIONS A, B, AND C OF K4 MAY BE DETERMINED FROM TABLE 4.
9. SCHEMATIC DIAGRAM FOR MOTOROLA PART NO. 01-3184B01.

TABLE 2. TRANSISTOR VOLTAGES

REF DES	TERMINAL		
	E	B	C
Q101	3.7	3.1	0
Q102	0	0	0
Q103	0	0	0

TABLE I
SWITCH POSITIONS OF METER SELECT SWITCH S102

POSITION	LABELED
1	28V DC
2	18V DC
3	AGC
4	RF MIX CUR
5	1ST IF
6	AUDIO
7	RFO
8	SW OSC
9	HF OSC
10	HF OSC
11	LF OSC
12	(WIPER)

Figure 28. Automatic Receiver Drawer, Schematic Diagram (Sheet 1 of 3)

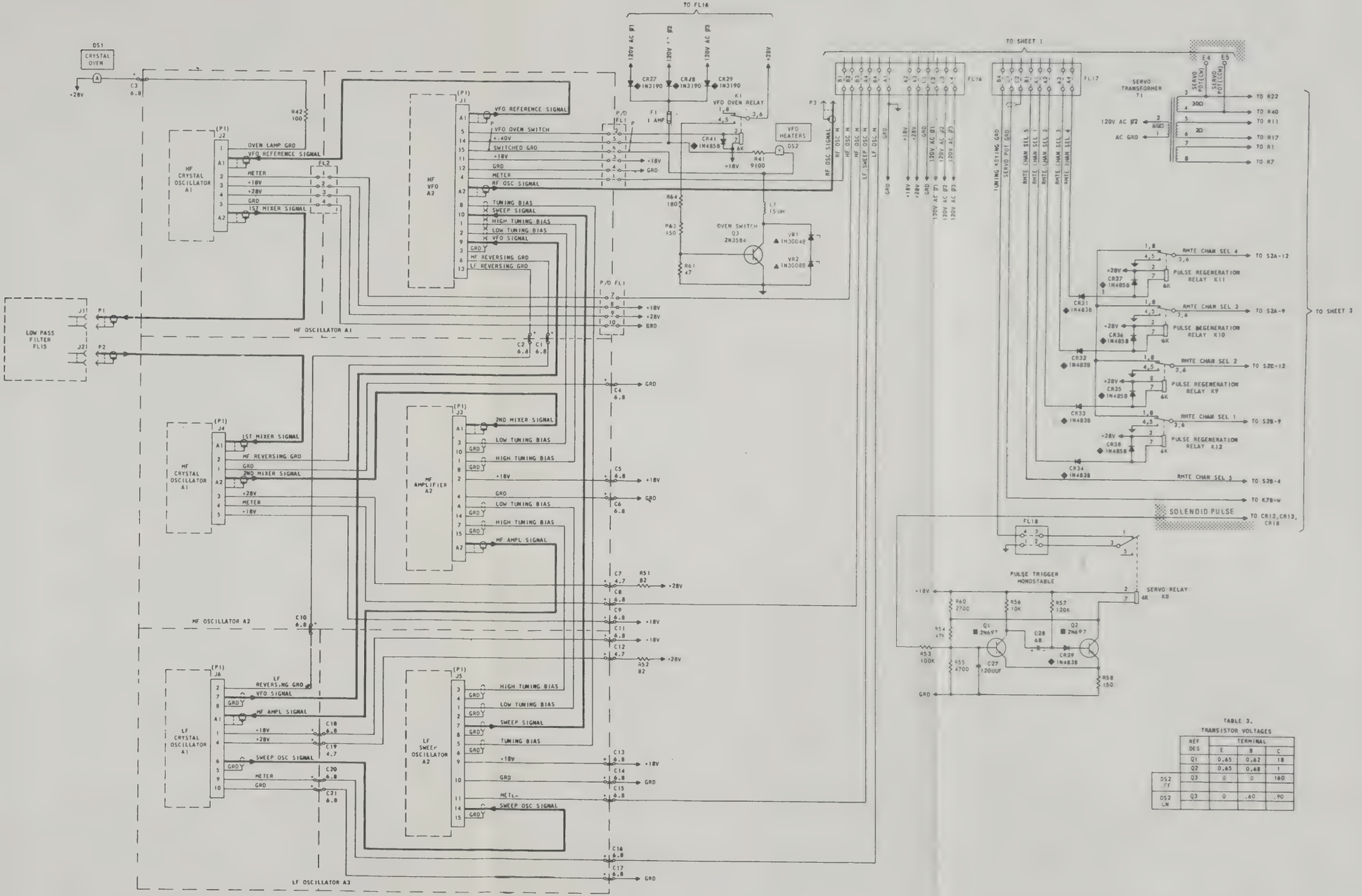


TABLE 3.
TRANSISTOR VOLTAGES

REF DES	TERMINAL E	TERMINAL B	TERMINAL C
Q1	0.45	0.62	18
Q2	0.45	0.68	1
Q3 (OS2 FF)	0	0	160
Q3 (OS2 LM)	0	.60	.90

Figure 28.. Automatic Receiver Drawer, Schematic Diagram (Sheet 2 of 3)

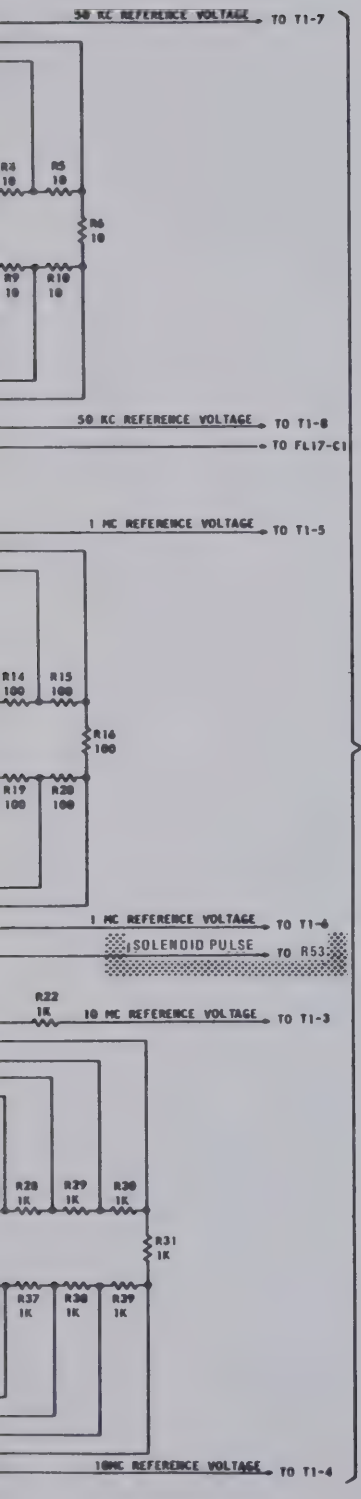
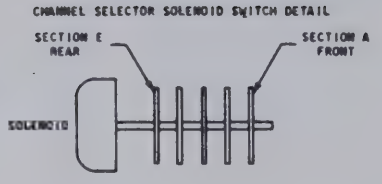


TABLE 4.

CHANNEL PRESELECTOR ASSEMBLY, S1, AND K4, PIN NO. VS. CHANNEL NO.

PIN	CHANNEL
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	
12	
13	11
14	12
15	13
16	14
17	15
18	16
19	17
20	18
21	19
22	20
23	M

CHANNEL SELECTOR SOLENOID SWITCH DETAIL



LF, MF, HF OSC SOLENOID SWITCH DETAIL

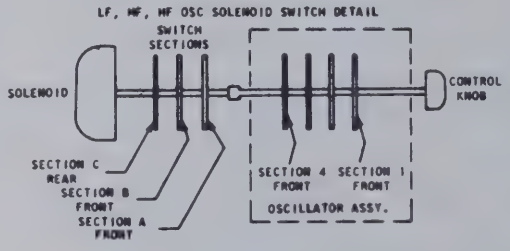
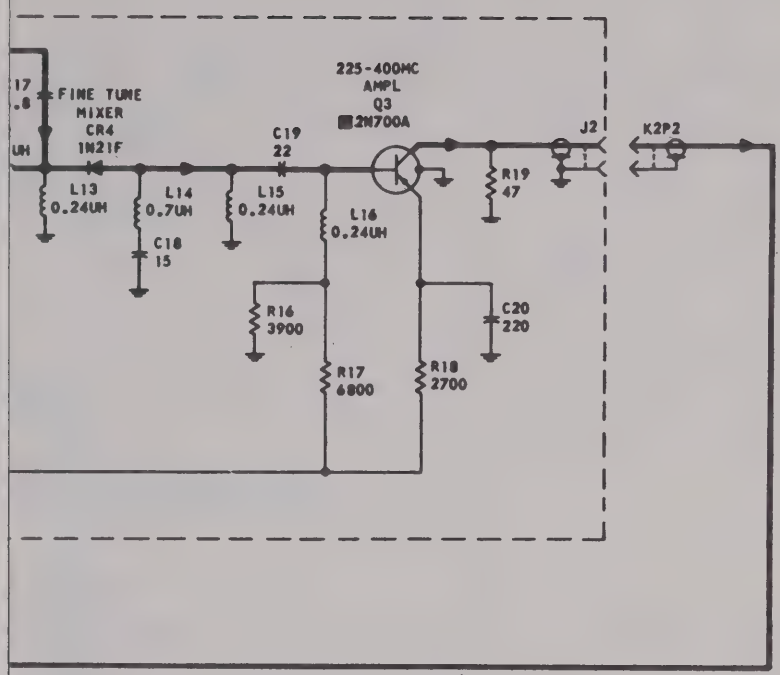


TABLE 5. FREQUENCIES CORRESPONDING TO POSITIONS OF SOLENOIDS K5, K6, AND K7

10 MC CONTROL SOLENOIDS K5				1 MC CONTROL SOLENOID K6			50KC CONTROL SOLENOID K7		
SOLENOID POSITION	CORRESPONDING SWITCH LABELING	FREQUENCY MC XMTR	FREQUENCY MC RCVR	SOLENOID POSITION	CORRESPONDING SWITCH LABELING	FREQUENCY MC	SOLENOID POSITION	CORRESPONDING SWITCH LABELING	FREQUENCY KC
1	22	220	176	1	0	0	1	.00	0
2	23	230	186	2	1	1	2	.05	50
3	24	240	196	3	2	2	3	.10	100
4	25	250	206	4	3	3	4	.15	150
5	26	260	216	5	4	4	5	.20	200
6	27	270	226	6	5	5	6	.25	250
7	28	280	236	7	6	6	7	.30	300
8	29	290	246	8	7	7	8	.35	350
9	30	300	256	9	8	8	9	.40	400
10	31	310	266	10	9	9	10	.45	450
11	32	320	276				11	.50	500
12	33	330	286				12	.55	550
13	34	340	296				13	.60	600
14	35	350	306				14	.65	650
15	36	360	316				15	.70	700
16	37	370	326				16	.75	750
17	38	380	336				17	.80	800
18	39	390	346				18	.85	850
							19	.90	900
							20	.95	950

Figure 28. Automatic Receiver Drawer, Schematic Diagram (Sheet 3 of 3)



ERWISE INDICATED,
ALUES ARE IN OHMS,
VALUES ARE IN MICROMICROFARADS.

DESIGNATIONS ARE ABBREVIATED.
ERENCE DESIGNATIONS WITH 1A2A6,
4A6, OR 1A16A6.

NCES OF COILS OF LESS THAN 1
EEN OMITTED.

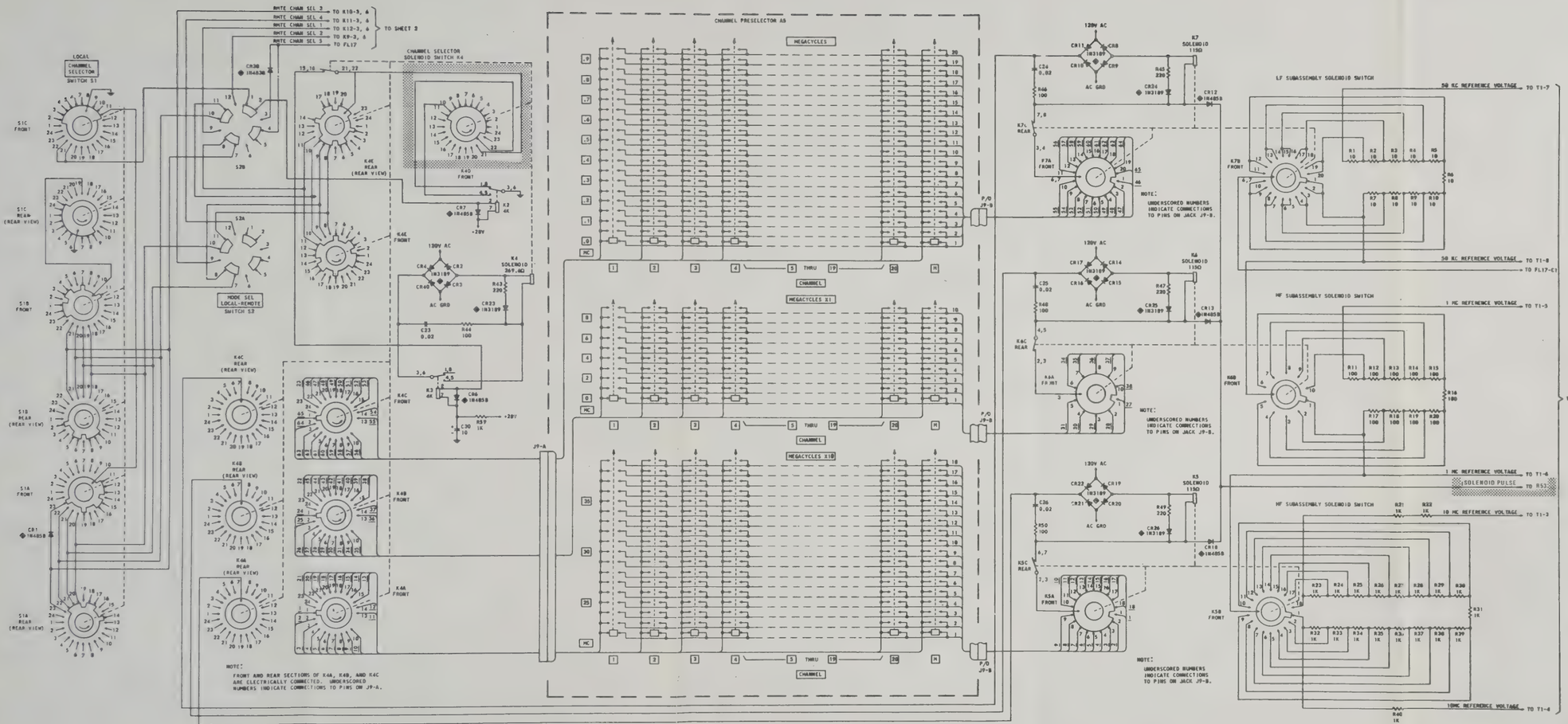
MEASUREMENTS TAKEN WITH A VTVM
CT TO GROUND, NO SIGNAL INPUT,
NTROLS SET IN NORMAL OPERATING

DIAGRAM FOR MOTOROLA PART
5A01

TRANSISTOR VOLTAGES

REF DES	TERMINAL		
	E	B	C
A2Q1	18	18	0
A2Q2	18	18	0
A4Q1	9.3	9.05	0
A4Q2	15	14.8	0
A4Q3	7.55	7.15	0

Figure 29. Manual Receiver Rf Section, Schematic Diagram



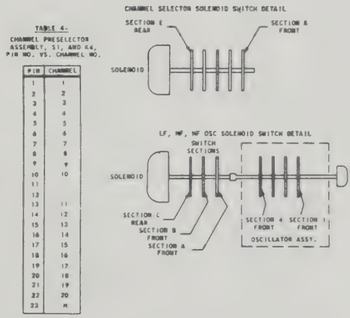


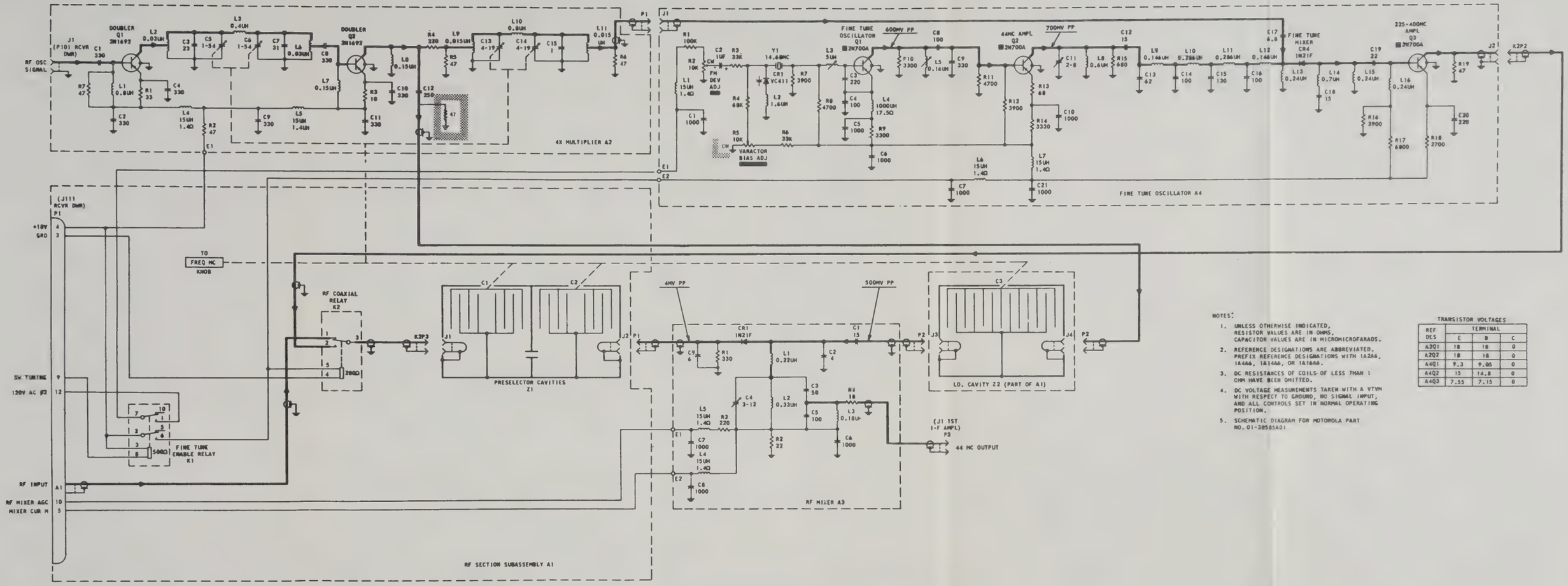
TABLE 4. CHANNEL PRESELECTOR ASSEMBLY, S1, AND K4, PIN NO. VS. CHANNEL NO.

P1B	CHANNEL
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	
12	
13	11
14	12
15	13
16	14
17	15
18	16
19	17
20	18
21	19
22	20
23	M

TABLE 5. FREQUENCIES CORRESPONDING TO POSITIONS OF SOLENOIDS K5, K6, AND K7

10 MC CONTROL SOLENOID K5			1 MC CONTROL SOLENOID K6			50KC CONTROL SOLENOID K7		
SOLENOID POSITION	CORRESPONDING SWITCH LABELING	FREQUENCY MC	SOLENOID POSITION	CORRESPONDING SWITCH LABELING	FREQUENCY MC	SOLENOID POSITION	CORRESPONDING SWITCH LABELING	FREQUENCY KC
1	22	220	1	0	0	1	.00	0
2	23	230	1	1	1	2	.05	50
3	24	240	2	2	2	3	.10	100
4	25	250	3	3	3	4	.15	150
5	26	260	4	4	4	5	.20	200
6	27	270	5	5	5	6	.25	250
7	28	280	6	6	6	7	.30	300
8	29	290	7	7	7	8	.35	350
9	30	300	8	8	8	9	.40	400
10	31	310	9	9	9	10	.45	450
11	32	320	10			11	.50	500
12	33	330				12	.55	550
13	34	340				13	.60	600
14	35	350				14	.65	650
15	36	360				15	.70	700
16	37	370				16	.75	750
17	38	380				17	.80	800
18	39	390				18	.85	850
						19	.90	900
						20	.95	950

Figure 28. Automatic Receiver Drawer, Schematic Diagram (Sheet 3 of 3)



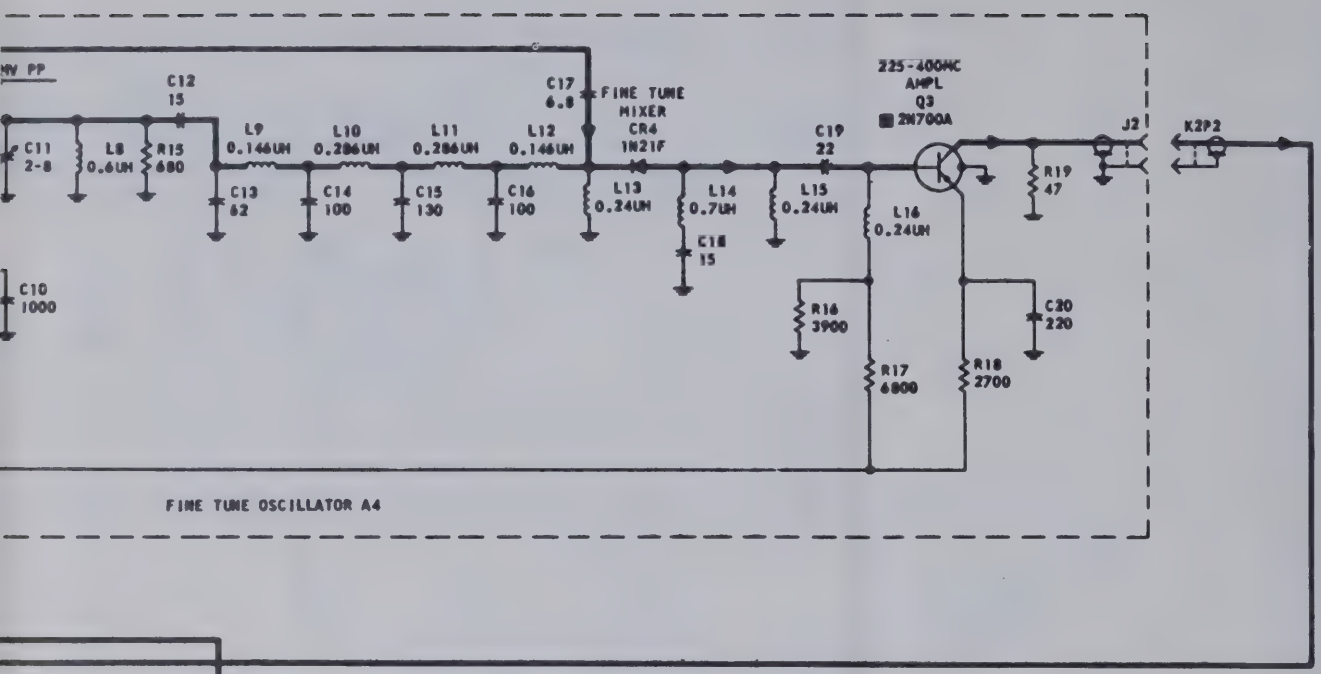
NOTES:

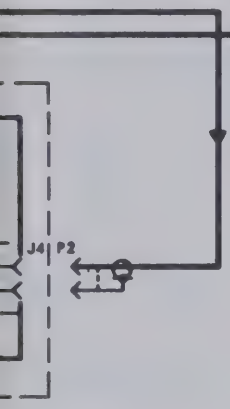
1. UNLESS OTHERWISE INDICATED, RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROMICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH 1A2A6, 1A4A6, 1A14A6, OR 1A16A6.
3. DC RESISTANCES OF COILS OF LESS THAN 1 OHM HAVE BEEN OMITTED.
4. DC VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT, AND ALL CONTROLS SET IN NORMAL OPERATING POSITION.
5. SCHEMATIC DIAGRAM FOR MOTOROLA PART NO. 01-38585A01

TRANSISTOR VOLTAGES

REF DES	TERMINAL		
	E	B	C
A2Q1	18	18	0
A2Q2	18	18	0
A4Q1	9.3	9.05	0
A4Q2	15	14.8	0
A4Q3	7.55	7.15	0

Figure 29. Manual Receiver Rf Section, Schematic Diagram





NOTES:

1. UNLESS OTHERWISE INDICATED
   RESISTOR VALUES ARE IN OHMS,
   CAPACITOR VALUES ARE IN MICROMICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH 1A11A6.
3. DC RESISTANCES OF COILS OF LESS THAN 1 OHM HAVE BEEN OMITTED.
4. DC VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT, AND ALL CONTROLS SET IN NORMAL OPERATING POSITION.
5. SCHEMATIC DIAGRAM FOR MOTOROLA PART NO. 01-38603A01

TRANSISTOR VOLTAGES

REF DES	TERMINAL		
	E	B	C
A2Q1	18	18	0
A2Q2	18	18	0
A4Q1	9.3	9.05	0
A4Q2	15	14.8	0
A4Q3	7.55	7.15	0

Figure 30. Automatic Receiver Rf Section, Schematic Diagram

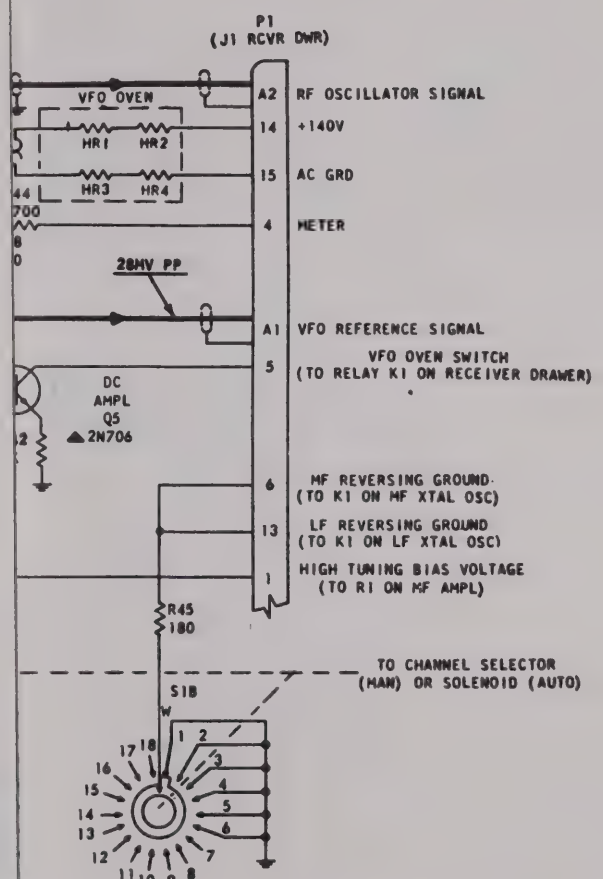


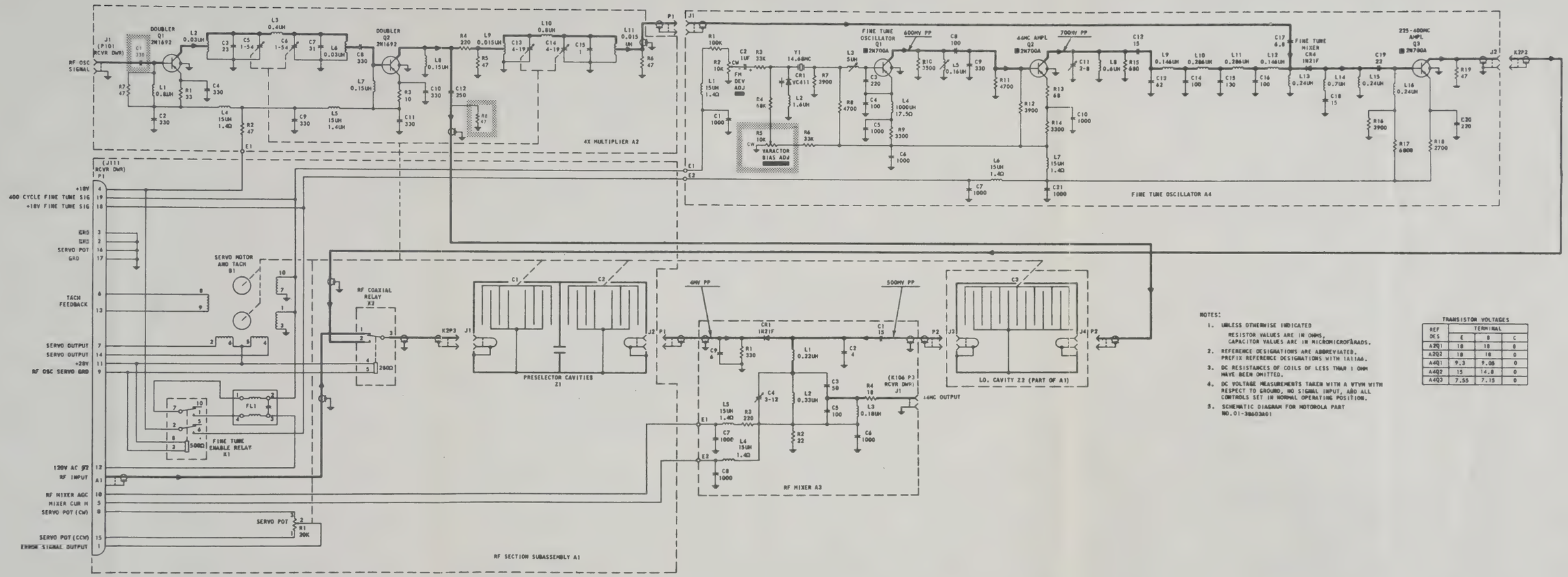
TABLE 1. SWITCH POSITIONS OF MEGACYCLES X10 CONTROL SWITCH S1

POSITION	LABELED	FREQUENCY (MC)
1	22	220
2	23	230
3	24	240
4	25	250
5	26	260
6	27	270
7	28	280
8	29	290
9	30	300
10	31	310
11	32	320
12	33	330
13	34	340
14	35	350
15	36	360
16	37	370
17	38	380
18	39	390
W	WIPER	

TABLE 2. TRANSISTOR VOLTAGES

REF DES	TERMINALS		
	E	B	C
Q1	6.7	6	1.2
Q2	8.3	8.4	0
Q3	5.5	5	0
Q4	6.75	7.1	6.7
Q5	2.9	3.6	3.1
Q3 ALT. CKT	7.9	8.0	0

Figure 31. Receiver Hf Vfo, Schematic Diagram



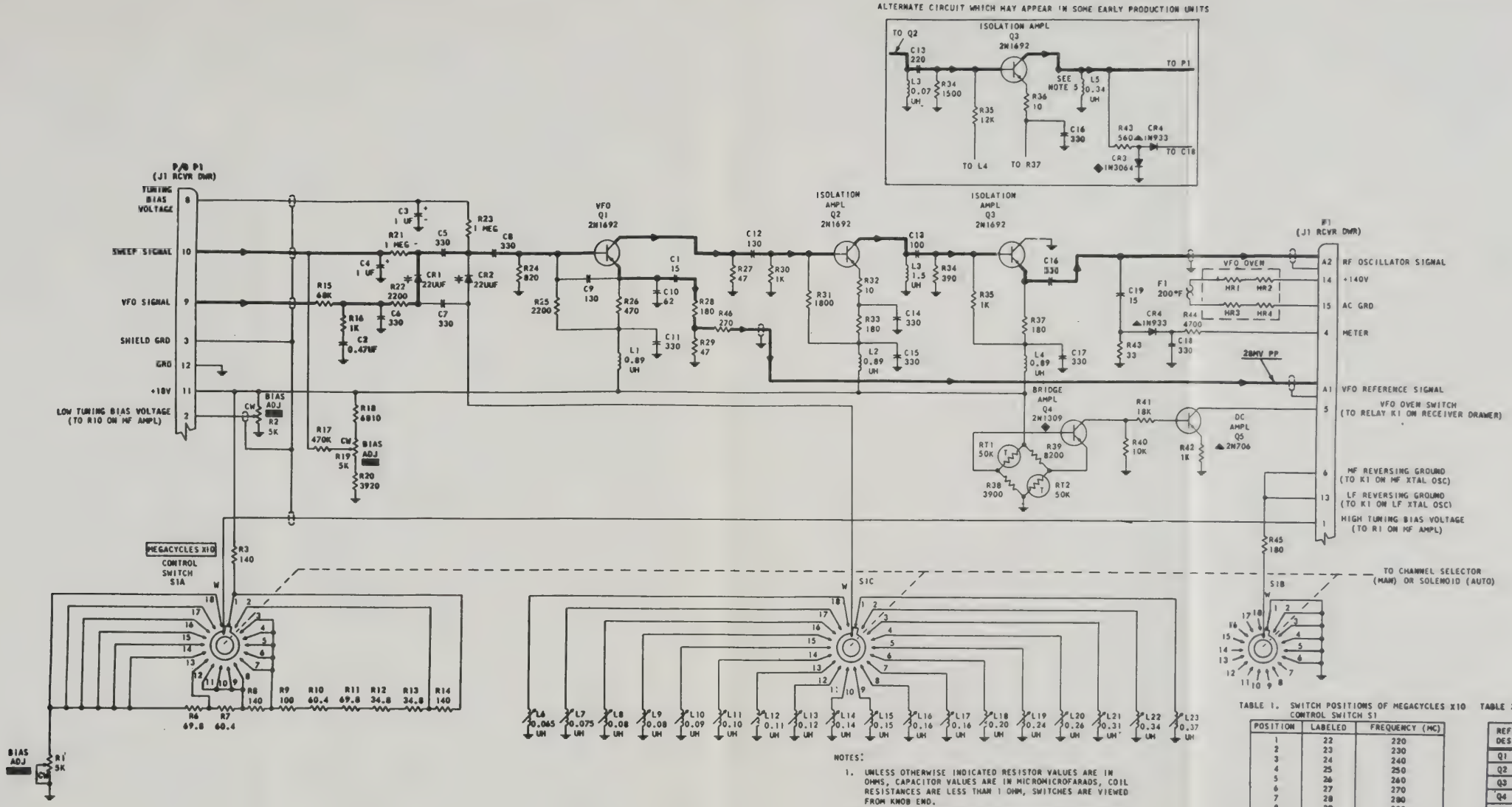
NOTES:

1. UNLESS OTHERWISE INDICATED
   RESISTOR VALUES ARE IN OHMS,
   CAPACITOR VALUES ARE IN MICROMICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH 1A11A6.
3. DC RESISTANCES OF COILS OF LESS THAN 1 OHM HAVE BEEN OMITTED.
4. DC VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT, AND ALL CONTROLS SET IN NORMAL OPERATING POSITION.
5. SCHEMATIC DIAGRAM FOR MOTOROLA PART NO. 01-38603A01

TRANSISTOR VOLTAGES

REF DES	TERMINAL		
	E	B	C
A2Q1	18	18	8
A2Q2	18	18	0
A4Q1	9.3	9.08	0
A4Q2	15	14.8	0
A4Q3	7.55	7.15	0

Figure 30. Automatic Receiver Rf Section, Schematic Diagram



NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROMICROFARADS, COIL RESISTANCES ARE LESS THAN 1 OHM, SWITCHES ARE VIEWED FROM KNOB END.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH: 1A2A1A2, 1A4A1A2, 1A14A1A2, OR 1A16A1A2 FOR MANUAL RECEIVER; 1A1A1A2 FOR AUTOMATIC RECEIVER.
3. DC VOLTAGE MEASUREMENTS TAKEN WITH RESPECT TO GROUND, NO SIGNAL INPUT, AND ALL CONTROLS SET IN NORMAL OPERATING POSITION.
4. DC RESISTANCES OF COILS ARE LESS THAN 1 OHM.
5. L5 WOUND ON 220-OHM RESISTOR.

TABLE 1. SWITCH POSITIONS OF MEGACYCLES X10 CONTROL SWITCH S1

POSITION	LABELED	FREQUENCY (MC)
1	22	220
2	23	230
3	24	240
4	25	250
5	26	260
6	27	270
7	28	280
8	29	290
9	30	300
10	31	310
11	32	320
12	33	330
13	34	340
14	35	350
15	36	360
16	37	370
17	38	380
18	39	390
W	WIPER	

TABLE 2. TRANSISTOR VOLTAGES

REF DES	TERMINALS E	B	C
Q1	6.7	6	1.2
Q2	8.3	8.4	0
Q3	5.5	5	0
Q4	6.75	7.1	6.7
Q5	2.9	3.6	3.1
Q3 ALT. CKT	7.9	8.0	0

Figure 31. Receiver Hf Vfo, Schematic Diagram

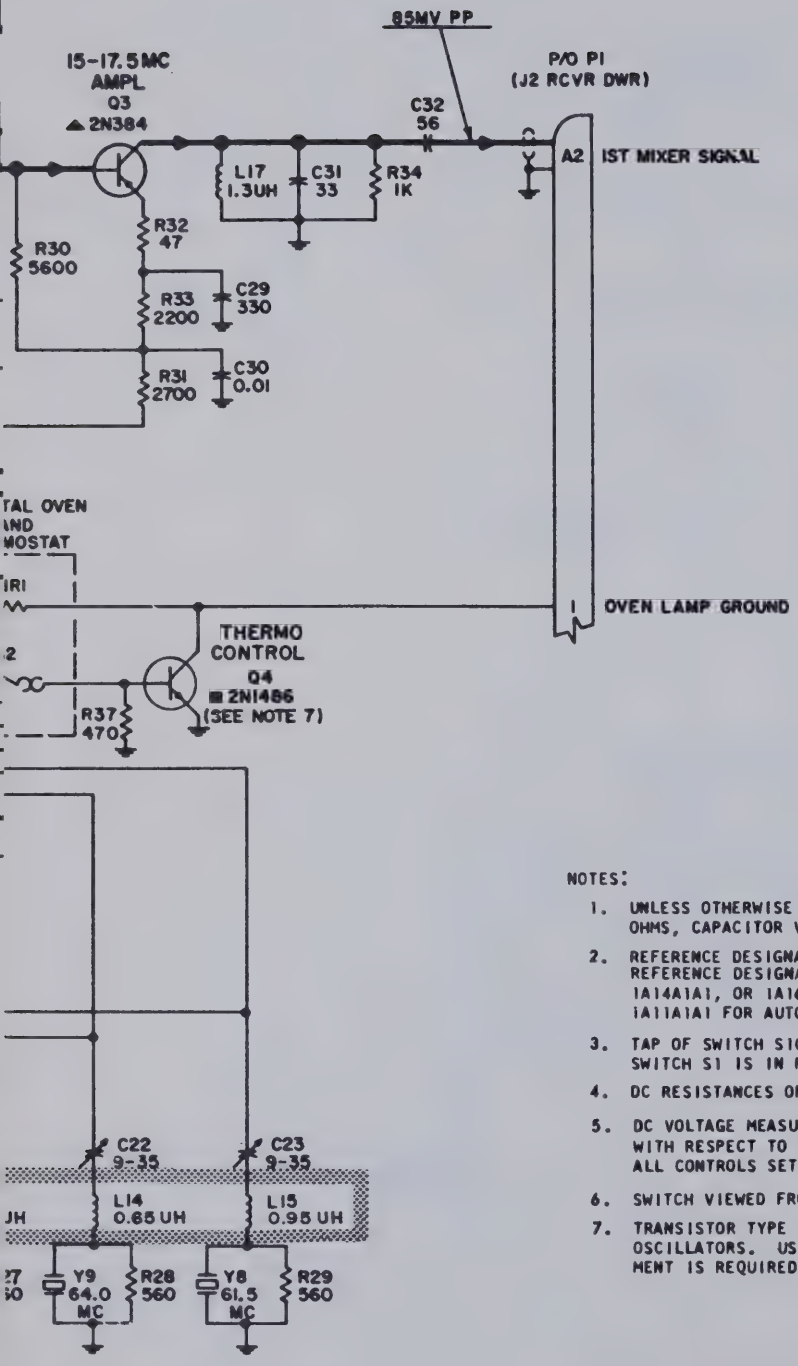


TABLE 1. SWITCH POSITIONS OF MEGACYCLES X10 CONTROL SWTICH S1

POSITION	LABELED	FREQUENCY (MC)
1	22	220
2	23	230
3	24	240
4	25	250
5	26	260
6	27	270
7	28	280
8	29	290
9	30	300
10	31	310
11	32	320
12	33	330
13	34	340
14	35	350
15	36	360
16	37	370
17	38	380
18	39	390

TABLE 2. TRANSISTOR VOLTAGES

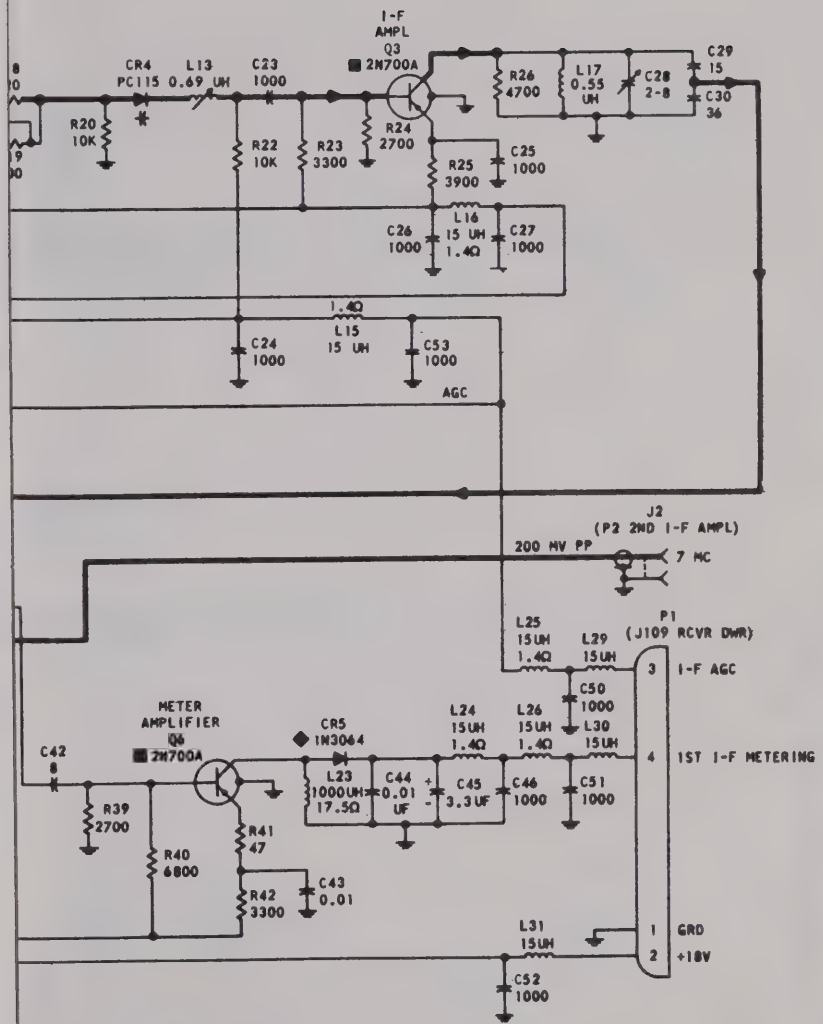
REF DES	TERMINAL		
	E	B	C
Q1	6.4	6.2	0.88
Q2	9.2	8.9	0
Q3	7.6	7.3	0
Q4*	0	0	28
Q4**	0	1.2	0.55

*S2 OPEN
**S2 CLOSED

NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROMICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH 1A2A1A1, 1A4A1A1, 1A14A1A1, OR 1A16A1A1 FOR MANUAL RECEIVER 1A11A1A1 FOR AUTOMATIC RECEIVER.
3. TAP OF SWITCH S1C REMAINS CONNECTED TO WIPER WHILE SWITCH S1 IS IN POSITIONS 7 THROUGH 12.
4. DC RESISTANCES OF COILS ARE LESS THAN 1 OHM.
5. DC VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT, AND ALL CONTROLS SET IN NORMAL OPERATING POSITION.
6. SWITCH VIEWED FROM KNOB END.
7. TRANSISTOR TYPE FOR Q4 IS 2N1484 IN SOME OSCILLATORS. USE TYPE 2N1486 IF REPLACEMENT IS REQUIRED.

Figure 32. Receiver Hf Crystal Oscillator, Schematic Diagram



NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROMICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH 1A2A4, 1A4A4, 1A14A4, OR 1A16A4 FOR MANUAL RECEIVER; 1A11A4 FOR AUTOMATIC RECEIVER.
3. DC VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT, AND ALL CONTROLS SET IN NORMAL OPERATING POSITION.
4. RESISTANCES OF COILS OF LESS THAN 1 OHM HAVE BEEN OMITTED.
5. SCHEMATIC DIAGRAM FOR MOTOROLA PART NO. 01-38583A01.

Figure 33. Receiver First I-f Amplifier, Schematic Diagram

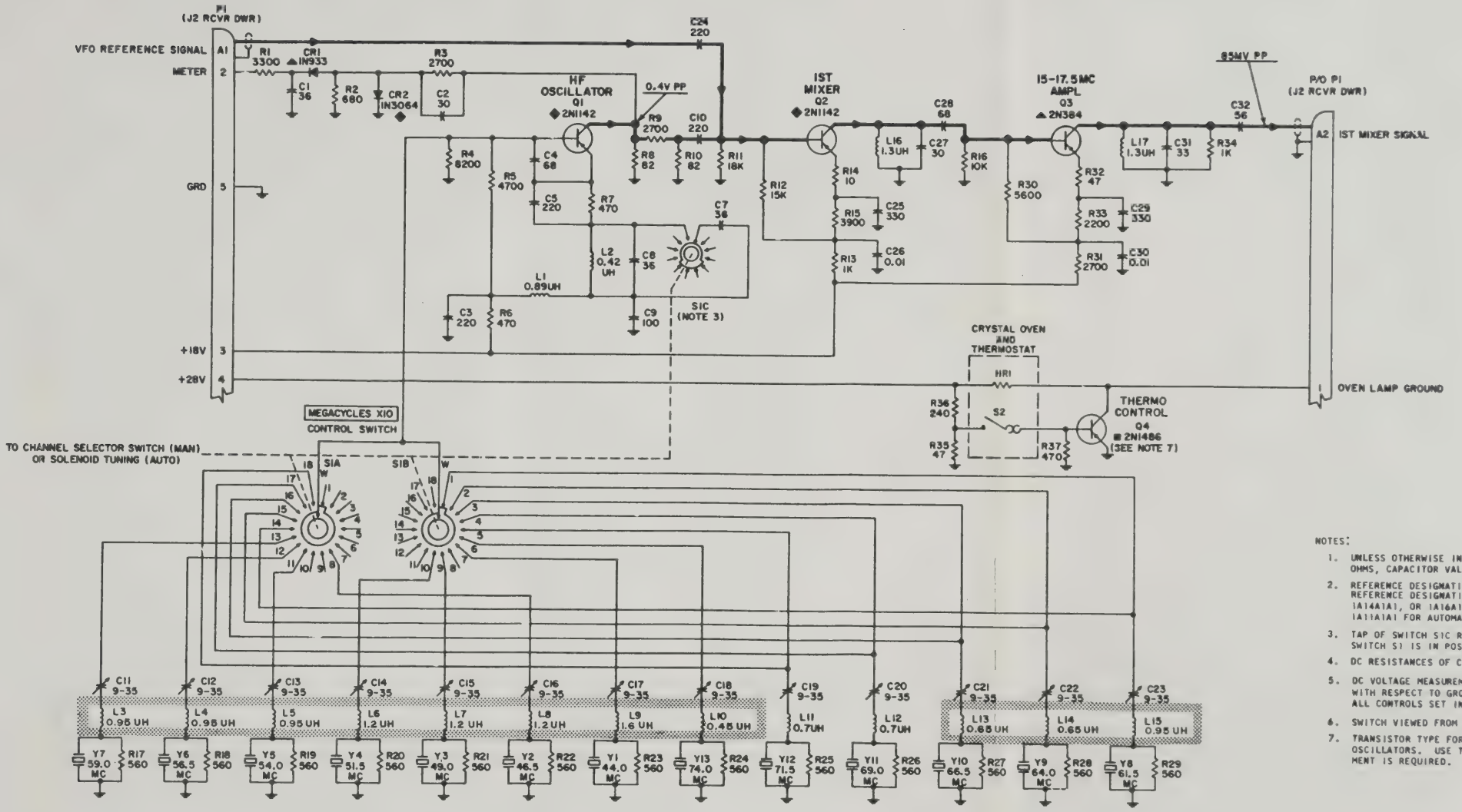


TABLE 1. SWITCH POSITIONS OF MEGACYCLES X10 CONTROL SWTICH S1

POSITION	LABELED	FREQUENCY (MC)
1	22	220
2	23	230
3	24	240
4	25	250
5	26	260
6	27	270
7	28	280
8	29	290
9	30	300
10	31	310
11	32	320
12	33	330
13	34	340
14	35	350
15	36	360
16	37	370
17	38	380
18	39	390

TABLE 2. TRANSISTOR VOLTAGES

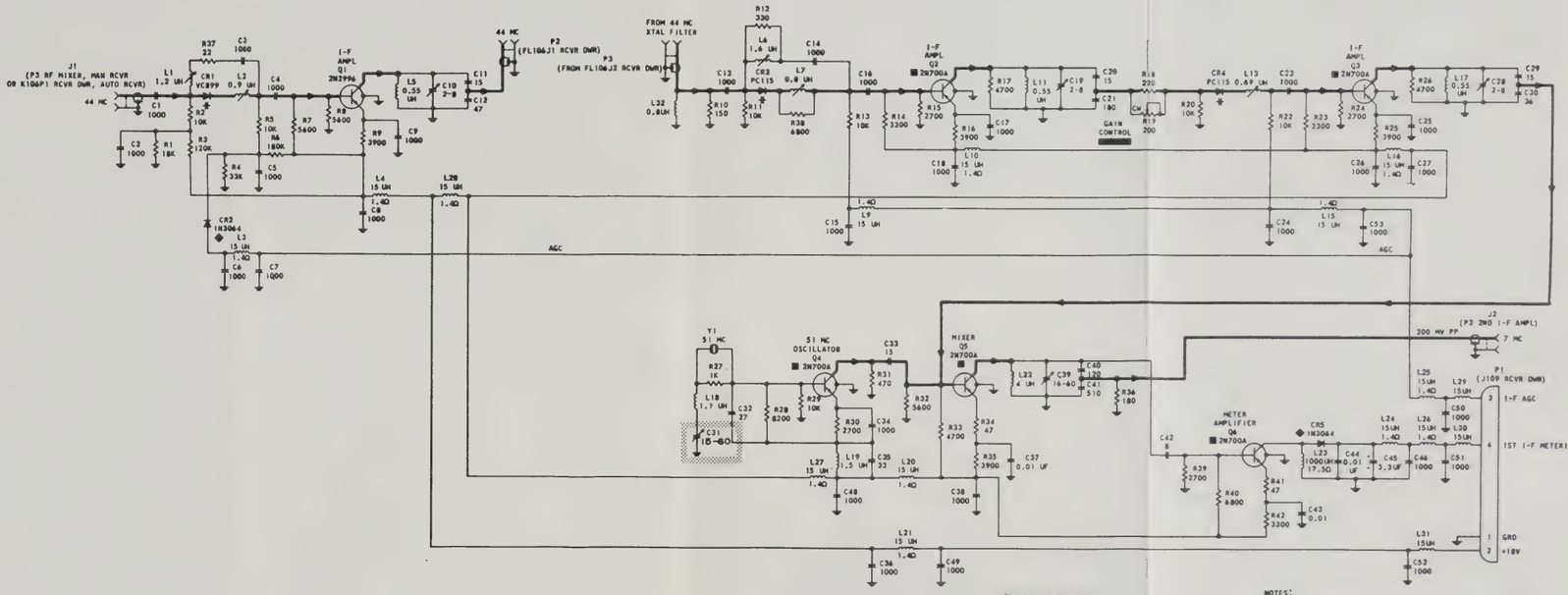
REF DES	TERMINAL E	B	C
Q1	6.4	6.2	0.88
Q2	9.2	8.9	0
Q3	7.6	7.3	0
Q4*	0	0	28
Q4**	0	1.2	0.55

*S2 OPEN
**S2 CLOSED

NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROMICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH 1A2A1A1, 1A4A1A1, 1A14A1A1, OR 1A16A1A1 FOR MANUAL RECEIVER 1A11A1A1 FOR AUTOMATIC RECEIVER.
3. TAP OF SWITCH S1C REMAINS CONNECTED TO WIPER WHILE SWITCH S1 IS IN POSITIONS 7 THROUGH 12.
4. DC RESISTANCES OF COILS ARE LESS THAN 1 OHM.
5. DC VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT, AND ALL CONTROLS SET IN NORMAL OPERATING POSITION.
6. SWITCH VIEWED FROM KNOB END.
7. TRANSISTOR TYPE FOR Q4 IS 2N1484 IN SOME OSCILLATORS. USE TYPE 2N1486 IF REPLACEMENT IS REQUIRED.

Figure 32. Receiver Hf Crystal Oscillator, Schematic Diagram



TRANSISTOR VOLTAGES

REF DES	TERMINAL		
	E	B	C
Q1	9	9.3	0
Q2	9.2	8.8	0
Q3	8.6	8.3	0
Q4	9.8	10.2	1.4
Q5	10.2	10	0
Q6	6	5.7	0

NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROMICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH 1A2A4, 1A4A4, 1A14A4, OR 1A1A4 FOR MANUAL RECEIVER; 1A11A4 FOR AUTOMATIC RECEIVER.
3. DC VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT, AND ALL CONTROLS SET IN NORMAL OPERATING POSITION.
4. RESISTANCES OF COILS OF LESS THAN 1 OHM HAVE BEEN OMITTED.
5. SCHEMATIC DIAGRAM FOR MOTOROLA PART NO. 01-38583A01.

Figure 33. Receiver First I-f Amplifier, Schematic Diagram

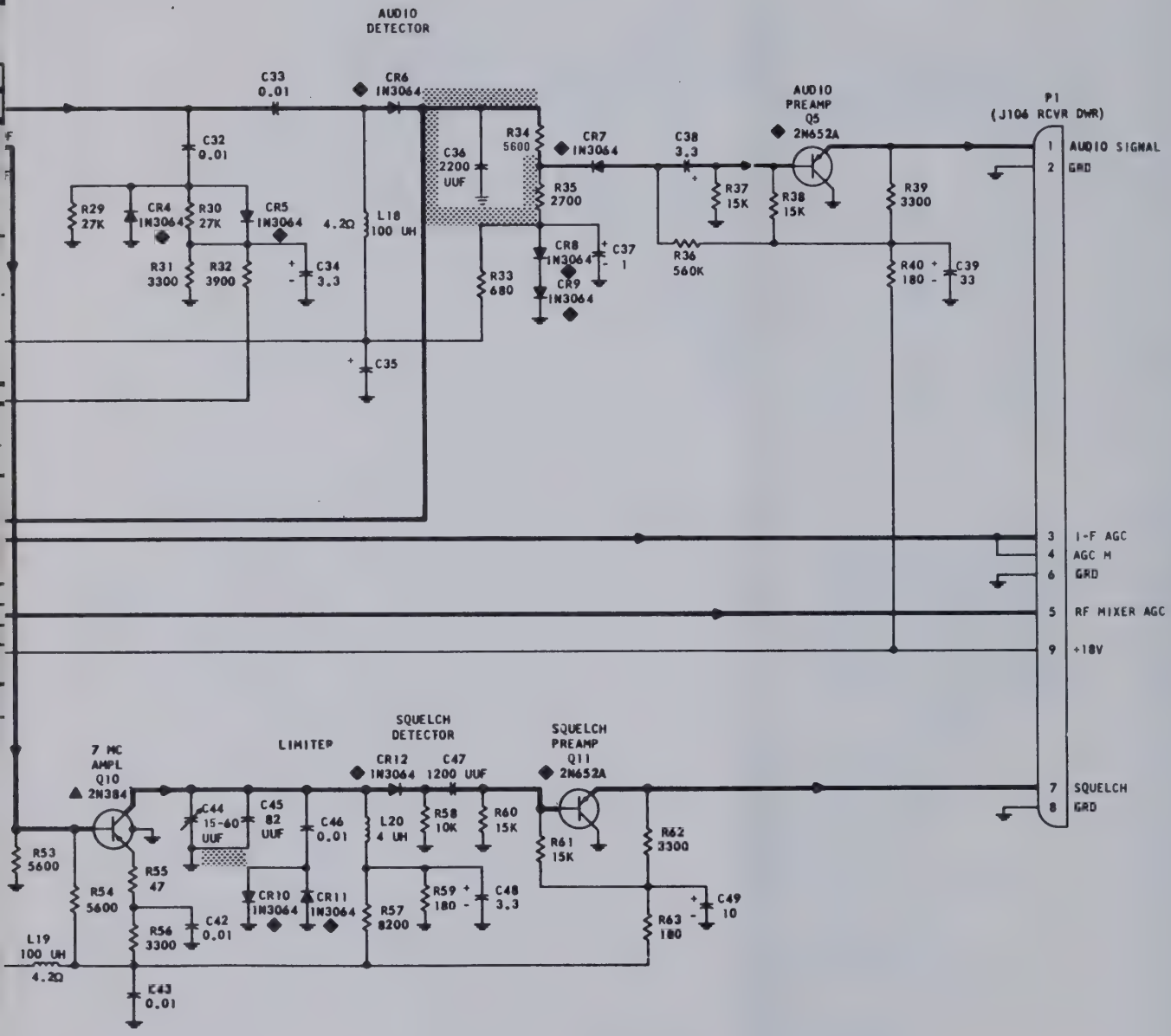
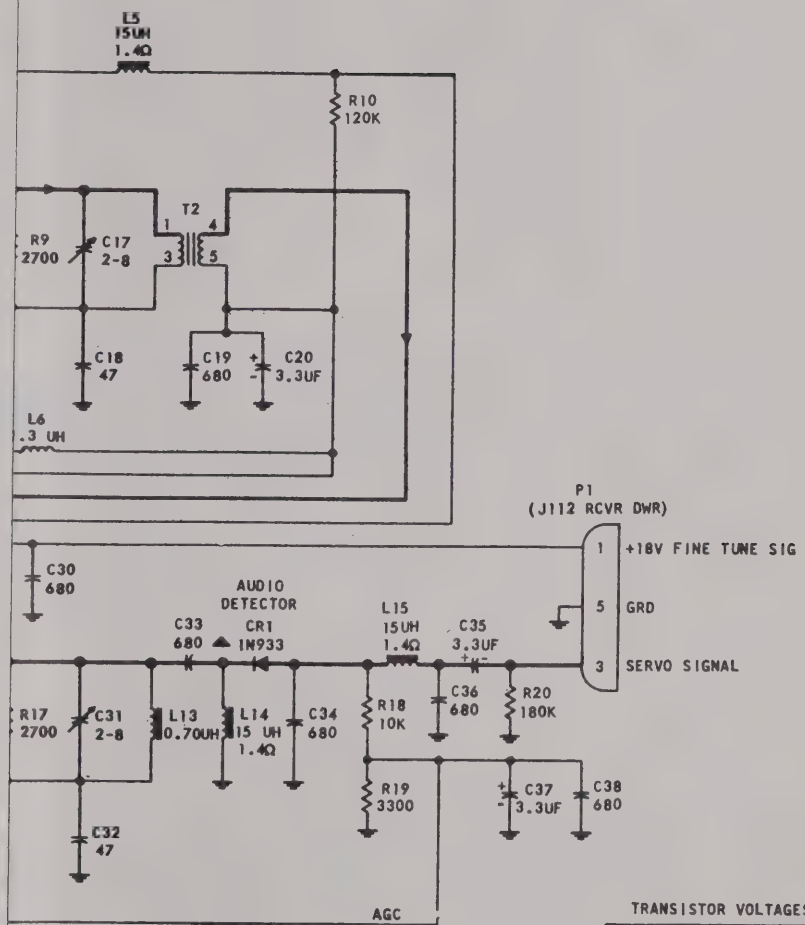


Figure 34. Receiver Second I-f Amplifier, Schematic Diagram



TRANSISTOR VOLTAGES

REF DES	TERMINAL		
	E	B	C
Q1	4.8	5.4	15.5
Q2	0.2	0.8	12.5
Q3	0.2	0.8	12.5
Q4	0.2	0.8	12.5

ERWISE INDICATED, RESISTOR
IN OHMS, CAPACITOR VALUES
ROMICROFARADS.

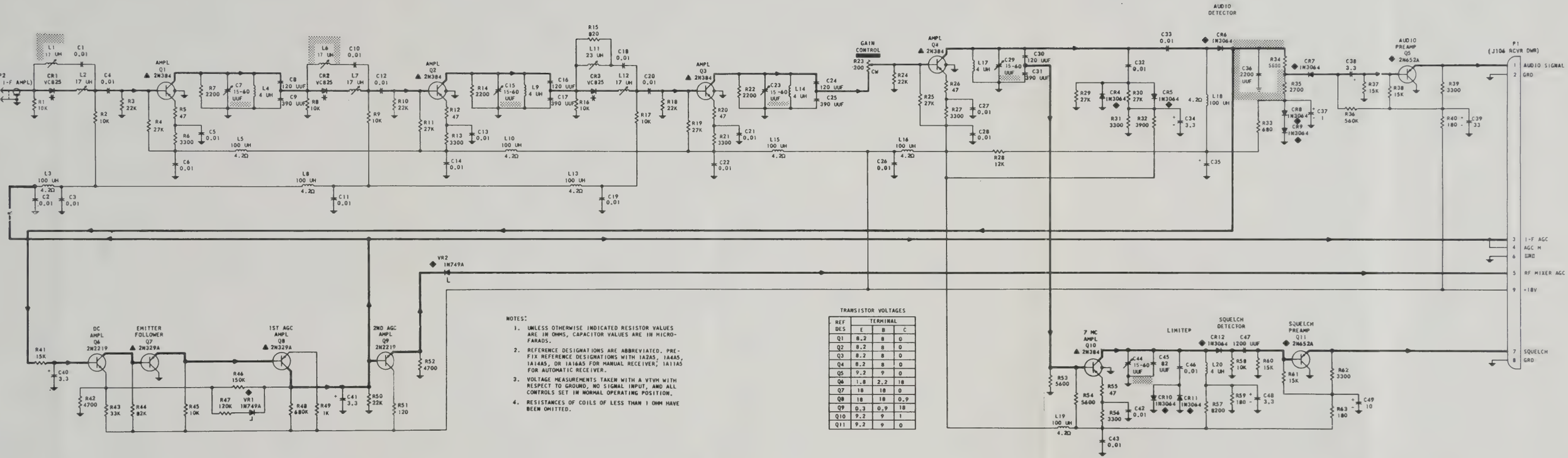
DESIGNATIONS ARE ABBREVIATED.
ERENCE DESIGNATIONS WITH 1A11A10.

ASUREMENTS TAKEN WITH A VTVM WITH
GROUND, NO SIGNAL INPUT, AND ALL
ET IN NORMAL OPERATING POSITION.

S OF COILS OF LESS THAN 1 OHM HAVE
ED.

DIAGRAM FOR MOTOROLA PART NO. 01-38682A01.

Figure 35. Receiver Fine Tune I-f Amplifier, Schematic Diagram



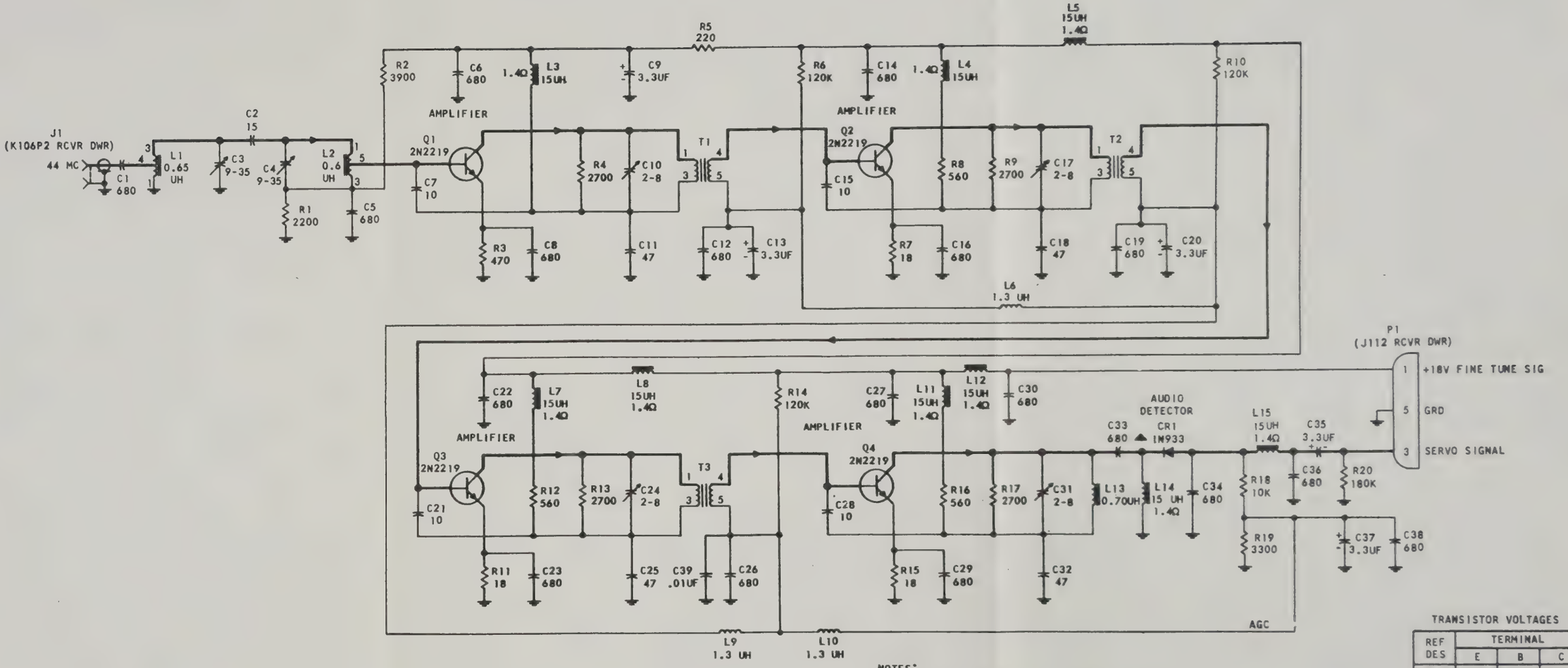
NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH 1A2A5, 1A4A5, 1A14A5, OR 1A16A5 FOR MANUAL RECEIVER; 1A11A5 FOR AUTOMATIC RECEIVER.
3. VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT, AND ALL CONTROLS SET IN NORMAL OPERATING POSITION.
4. RESISTANCES OF COILS OF LESS THAN 1 OHM HAVE BEEN OMITTED.

TRANSISTOR VOLTAGES

REF DES	TERMINAL		
	E	B	C
Q1	8.2	8	0
Q2	8.2	8	0
Q3	8.2	8	0
Q4	8.2	8	0
Q5	9.2	9	0
Q6	1.8	2.2	18
Q7	18	18	0
Q8	18	18	0.9
Q9	0.3	0.9	18
Q10	9.2	9	1
Q11	9.2	9	0

Figure 34. Receiver Second I-f Amplifier, Schematic Diagram



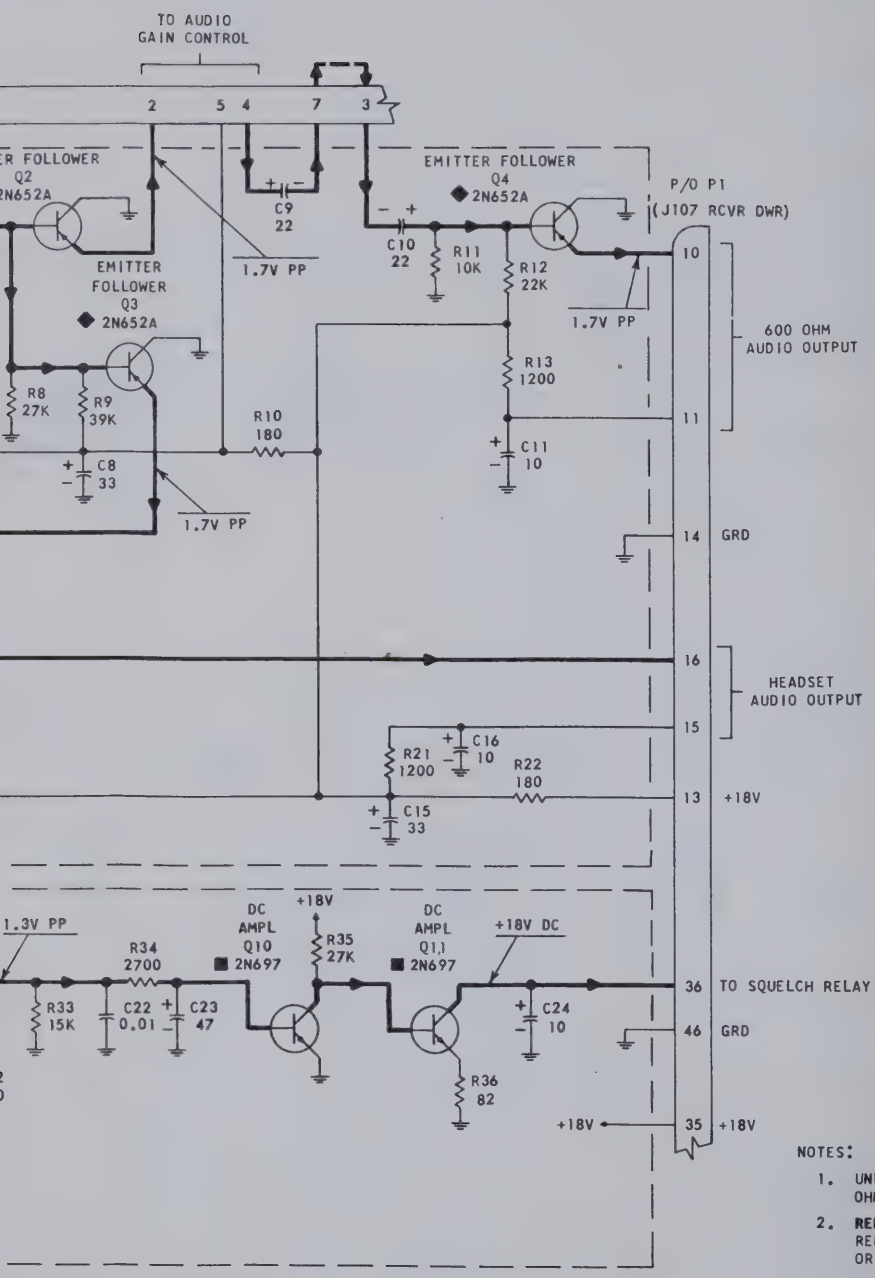
TRANSISTOR VOLTAGES

REF DES	TERMINAL		
	E	B	C
Q1	4.8	5.4	15.5
Q2	0.2	0.8	12.5
Q3	0.2	0.8	12.5
Q4	0.2	0.8	12.5

NOTES:

1. UNLESS OTHERWISE INDICATED, RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROMICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH 1A11A10.
3. VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT, AND ALL CONTROLS SET IN NORMAL OPERATING POSITION.
4. RESISTANCES OF COILS OF LESS THAN 1 OHM HAVE BEEN OMITTED.
5. SCHEMATIC DIAGRAM FOR MOTOROLA PART NO. 01-38682A01.

Figure 35. Receiver Fine Tune I-f Amplifier, Schematic Diagram



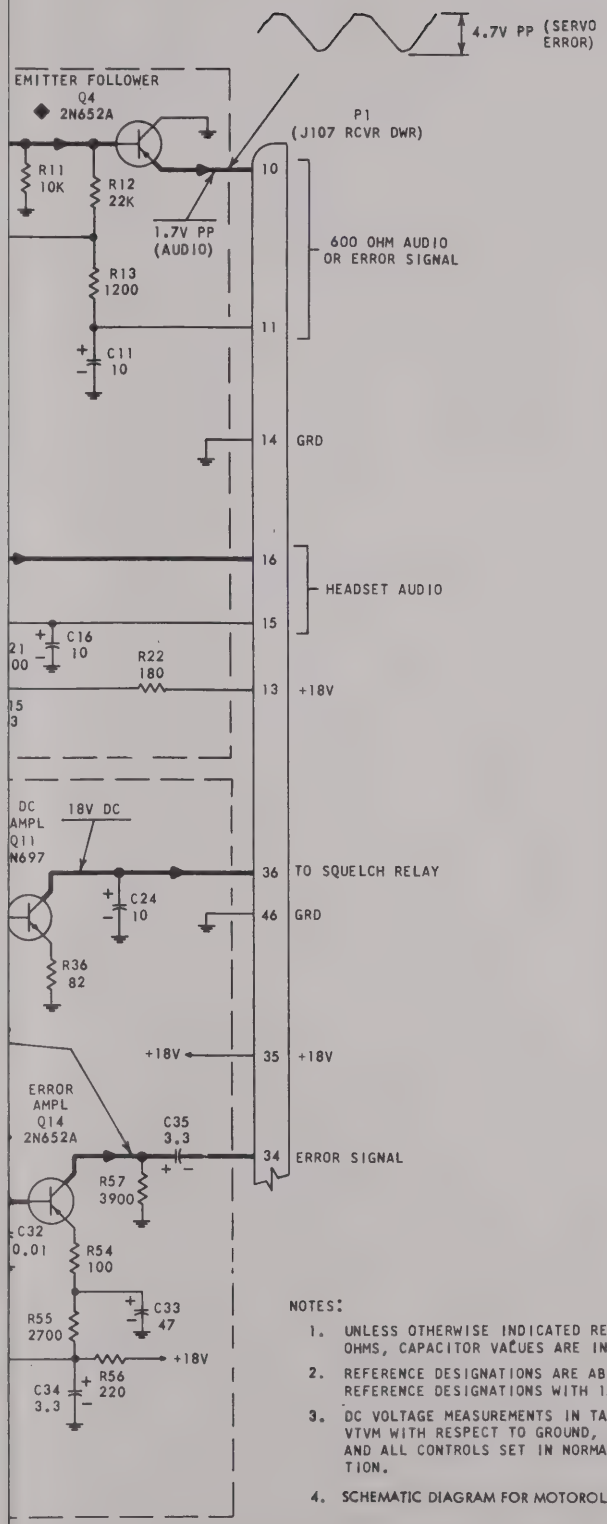
TRANSISTOR VOLTAGES

REF DES	TERMINAL		
	E	B	C
Q1	6.4	6.2	4.1
Q2	5.7	5.5	0
Q3	5.7	5.5	0
Q4	4.8	4.6	0
Q5	12	11.8	6.8
Q6	4.7	4.5	0
Q7	14.8	14.6	4.6
Q8	12	11.8	10
Q9	18	18	0
Q10	0	0	1
Q11	0.34	1	0.42

NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS.
2. **REFERENCE** DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH 1A2A9, 1A4A9, 1A14A9, OR 1A16A9.
3. DC VOLTAGE MEASUREMENTS IN TABLE TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT, AND ALL CONTROLS SET IN NORMAL OPERATING POSITION.
4. SCHEMATIC DIAGRAM FOR MOTOROLA PART NO. 01-38581A01.

Figure 36. Receiver Audio Preamplifier and Squelch Amplifier, Schematic Diagram



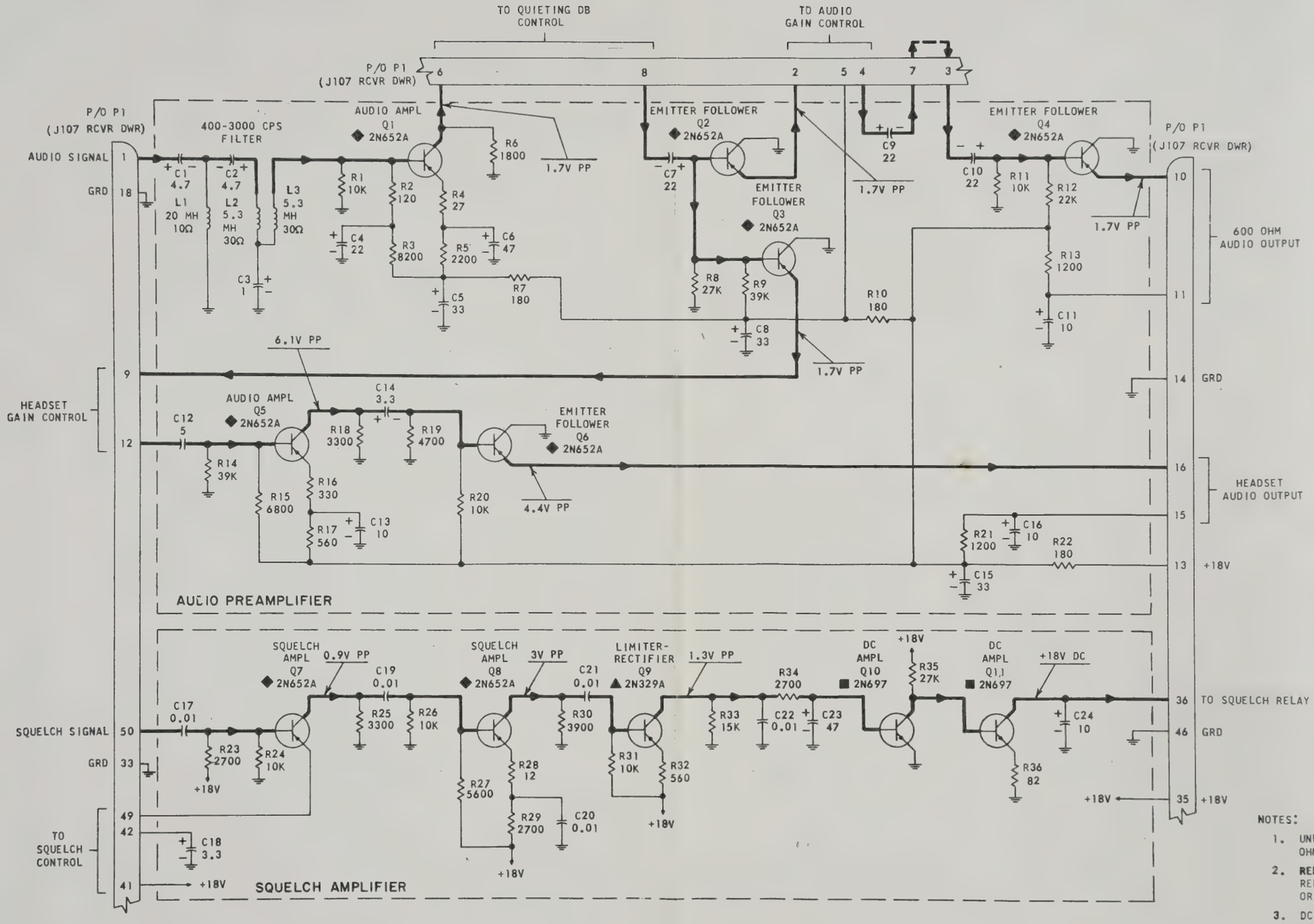
TRANSISTOR VOLTAGES

REF DES	TERMINAL		
	E	B	C
Q1	6.4	6.2	4.1
Q2	5.7	5.5	0
Q3	5.7	5.5	0
Q4	4.8	4.6	0
Q5	12	11.8	6.8
Q6	4.7	4.5	0
Q7	14.8	14.6	4.6
Q8	12	11.8	10
Q9	18	18	0
Q10	0	0	1
Q11	0.34	1	0.42
Q12	12.7	12.5	3
Q13	11.6	11.4	6
Q14	12	11.8	7.2

NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH 1A11A9.
3. DC VOLTAGE MEASUREMENTS IN TABLE TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT, AND ALL CONTROLS SET IN NORMAL OPERATING POSITION.
4. SCHEMATIC DIAGRAM FOR MOTOROLA PART NO. 01-38601A01.

Figure 37. Receiver Audio-Servo Preamplifier and Squelch Amplifier, Schematic Diagram



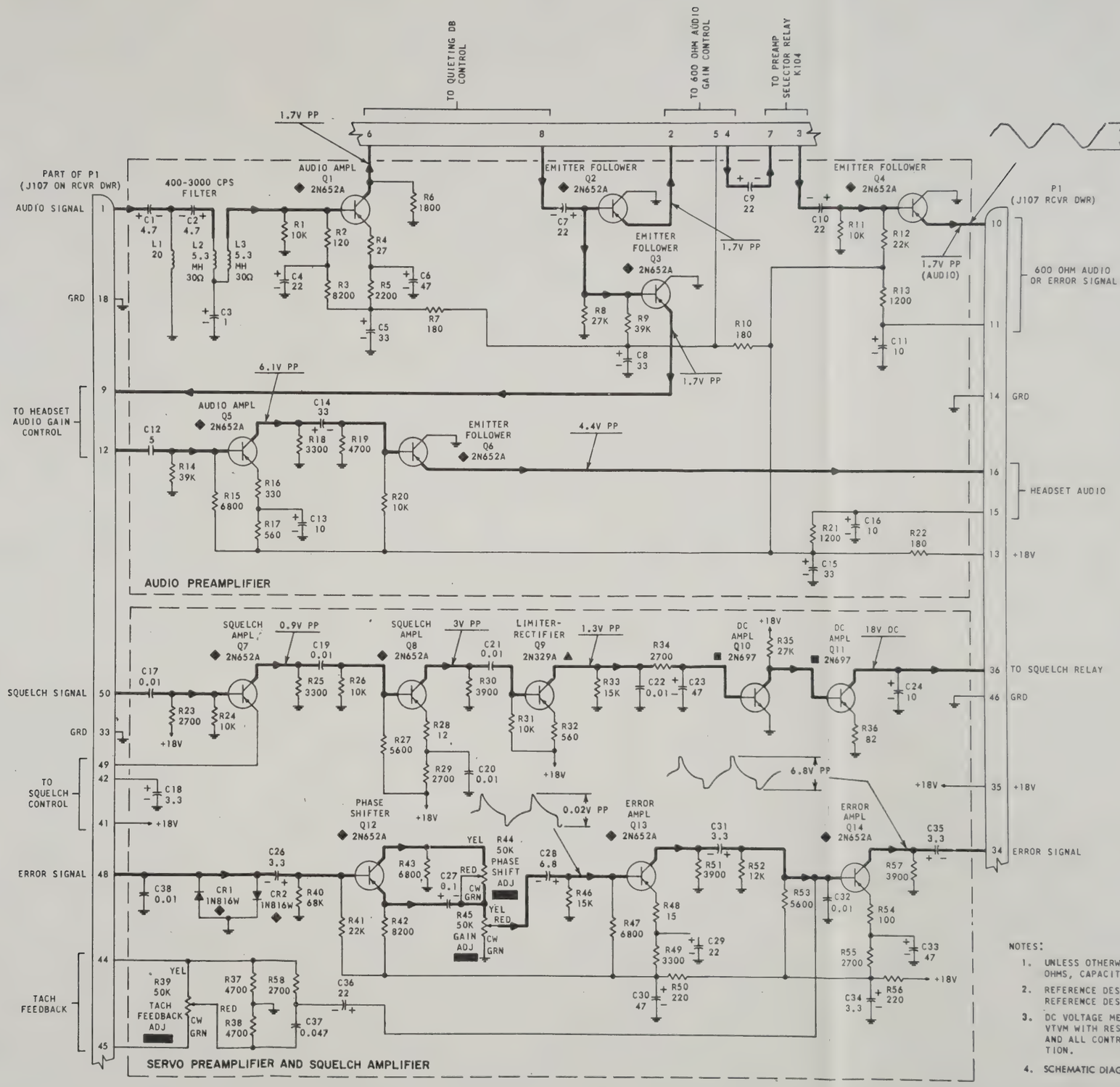
TRANSISTOR VOLTAGES

REF DES	TERMINAL E	B	C
Q1	6.4	6.2	4.1
Q2	5.7	5.5	0
Q3	5.7	5.5	0
Q4	4.8	4.6	0
Q5	12	11.8	6.8
Q6	4.7	4.5	0
Q7	14.8	14.6	4.6
Q8	12	11.8	10
Q9	18	18	0
Q10	0	0	1
Q11	0.34	1	0.42

NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH 1A2A9, 1A4A9, 1A14A9, OR 1A16A9.
3. DC VOLTAGE MEASUREMENTS IN TABLE TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT, AND ALL CONTROLS SET IN NORMAL OPERATING POSITION.
4. SCHEMATIC DIAGRAM FOR MOTOROLA PART NO. 01-38581A01.

Figure 36. Receiver Audio Preamplifier and Squelch Amplifier, Schematic Diagram



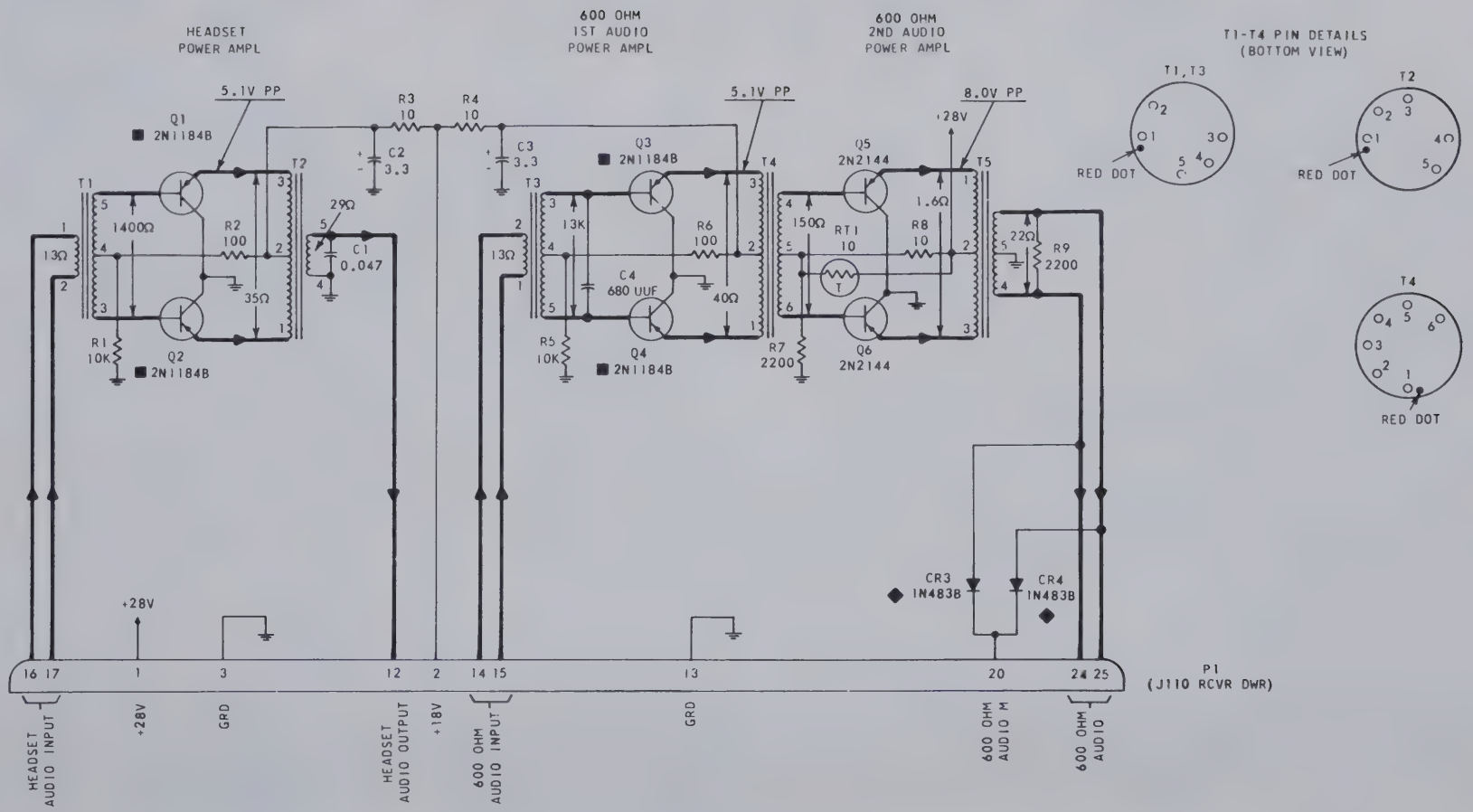
TRANSISTOR VOLTAGES

REF DES	TERMINAL		
	E	B	C
Q1	6.4	6.2	4.1
Q2	5.7	5.5	0
Q3	5.7	5.5	0
Q4	4.8	4.6	0
Q5	12	11.8	6.8
Q6	4.7	4.5	0
Q7	14.8	14.6	4.6
Q8	12	11.8	10
Q9	18	18	0
Q10	0	0	1
Q11	0.34	1	0.42
Q12	12.7	12.5	3
Q13	11.6	11.4	6
Q14	12	11.8	7.2

NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH 1A11A9.
3. DC VOLTAGE MEASUREMENTS IN TABLE TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT, AND ALL CONTROLS SET IN NORMAL OPERATING POSITION.
4. SCHEMATIC DIAGRAM FOR MOTOROLA PART NO. 01-38601A01.

Figure 37. Receiver Audio-Servo Preamplifier and Squelch Amplifier, Schematic Diagram



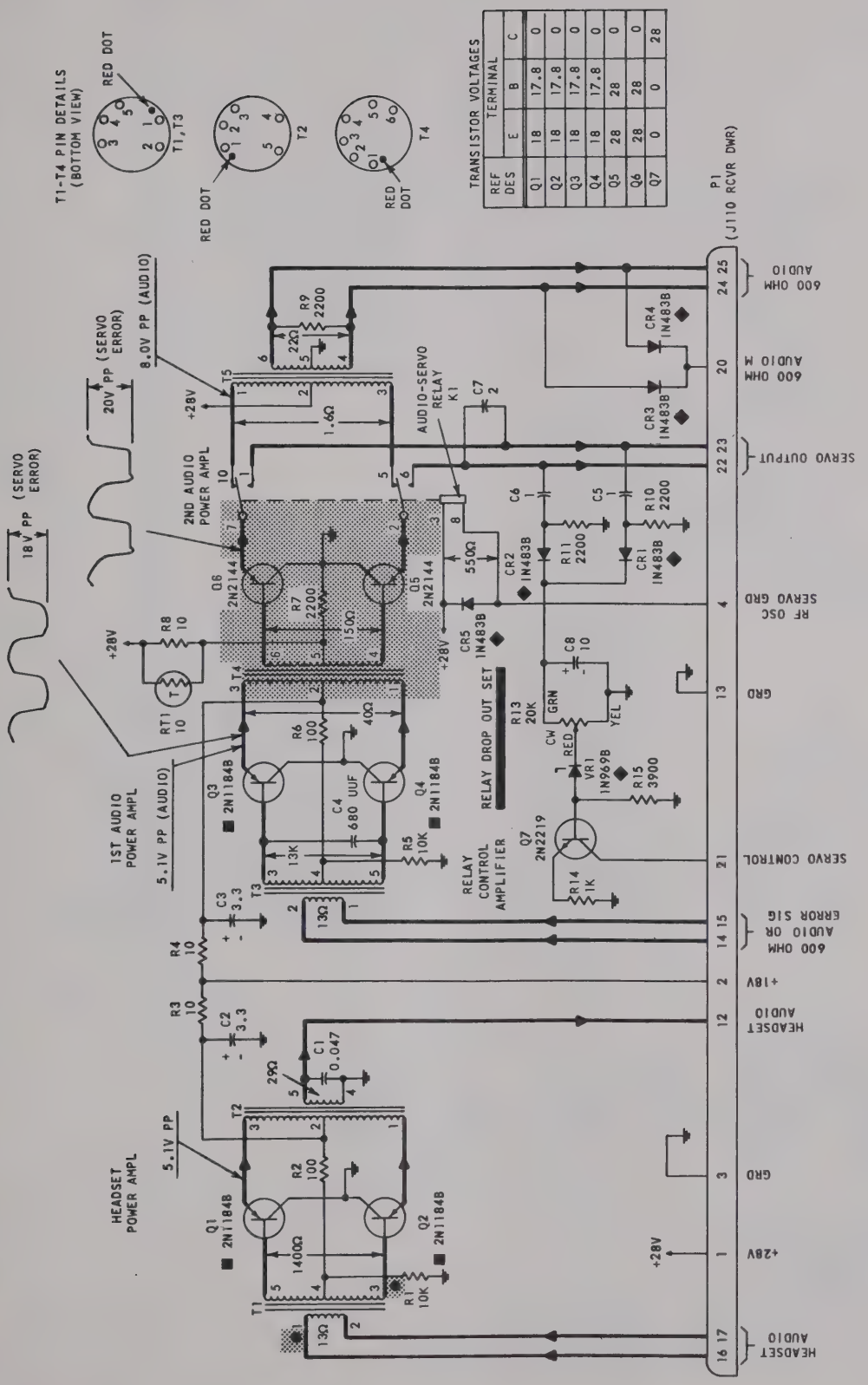
NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH 1A2A8, 1A4A8, 1A14A8, OR 1A16A8.
3. DC VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT, AND ALL CONTROLS SET IN NORMAL OPERATING POSITION.
4. RESISTANCES OF TRANSFORMER WINDINGS OF LESS THAN 1 OHM HAVE BEEN OMITTED.
5. SCHEMATIC DIAGRAM FOR MOTOROLA PART NO. 01-38580A01

TRANSISTOR VOLTAGES

REF DES	TERMINAL		
	E	B	C
Q1	18	17.8	0
Q2	18	17.8	0
Q3	18	17.8	0
Q4	18	17.8	0
Q5	28	28	0
Q6	28	28	0

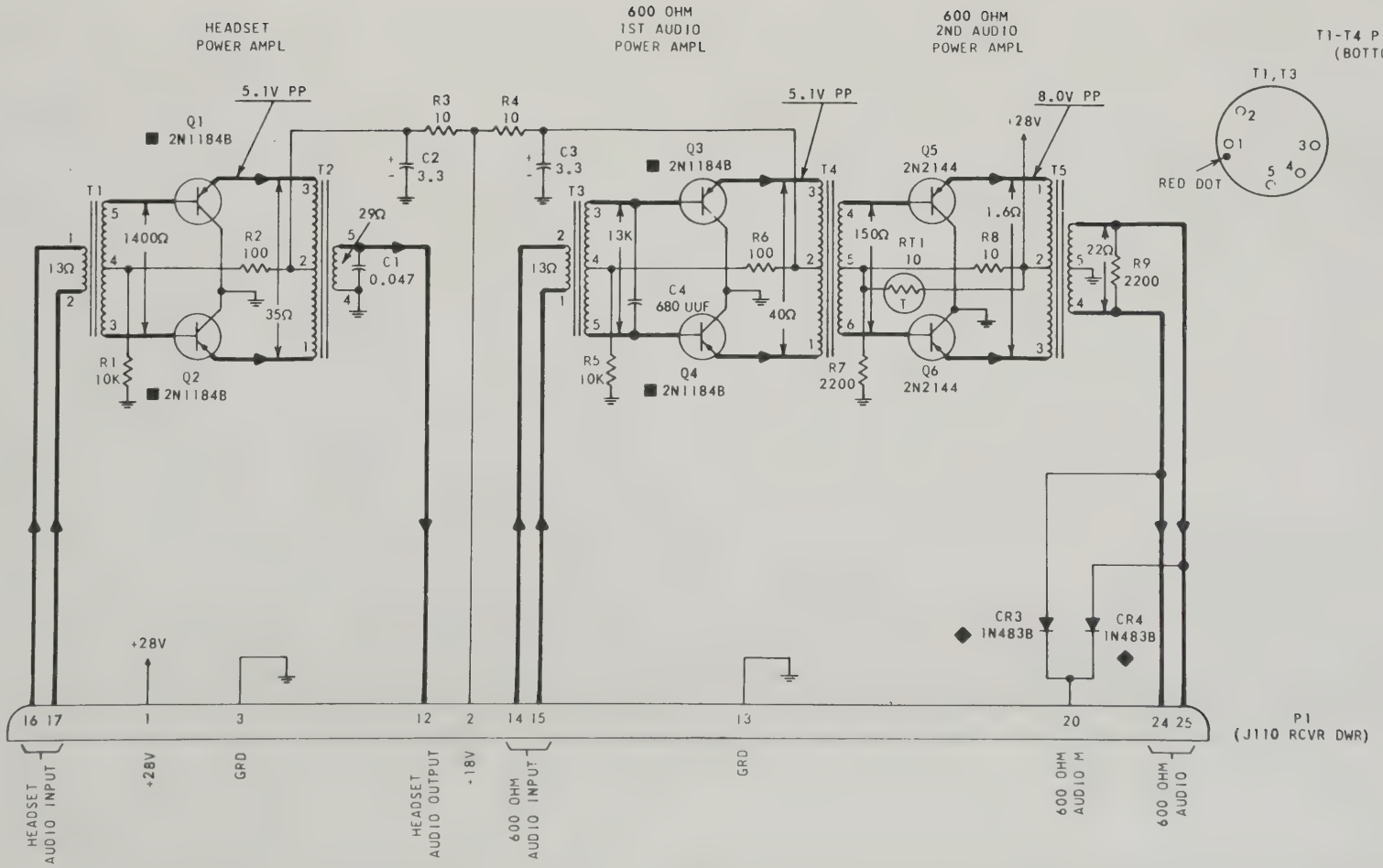
Figure 38. Receiver Audio Amplifier, Schematic Diagram



NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH 1A11A8.
3. DC VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT AND ALL CONTROLS SET IN NORMAL OPERATING POSITION.
4. RESISTANCES OF TRANSFORMER WINDINGS OF LESS THAN 1 OHM HAVE BEEN OMITTED.
5. SCHEMATIC DIAGRAM FOR MOTOROLA PART NO. 01-38600A01.

Figure 39. Receiver Audio-Servo Amplifier, Schematic Diagram



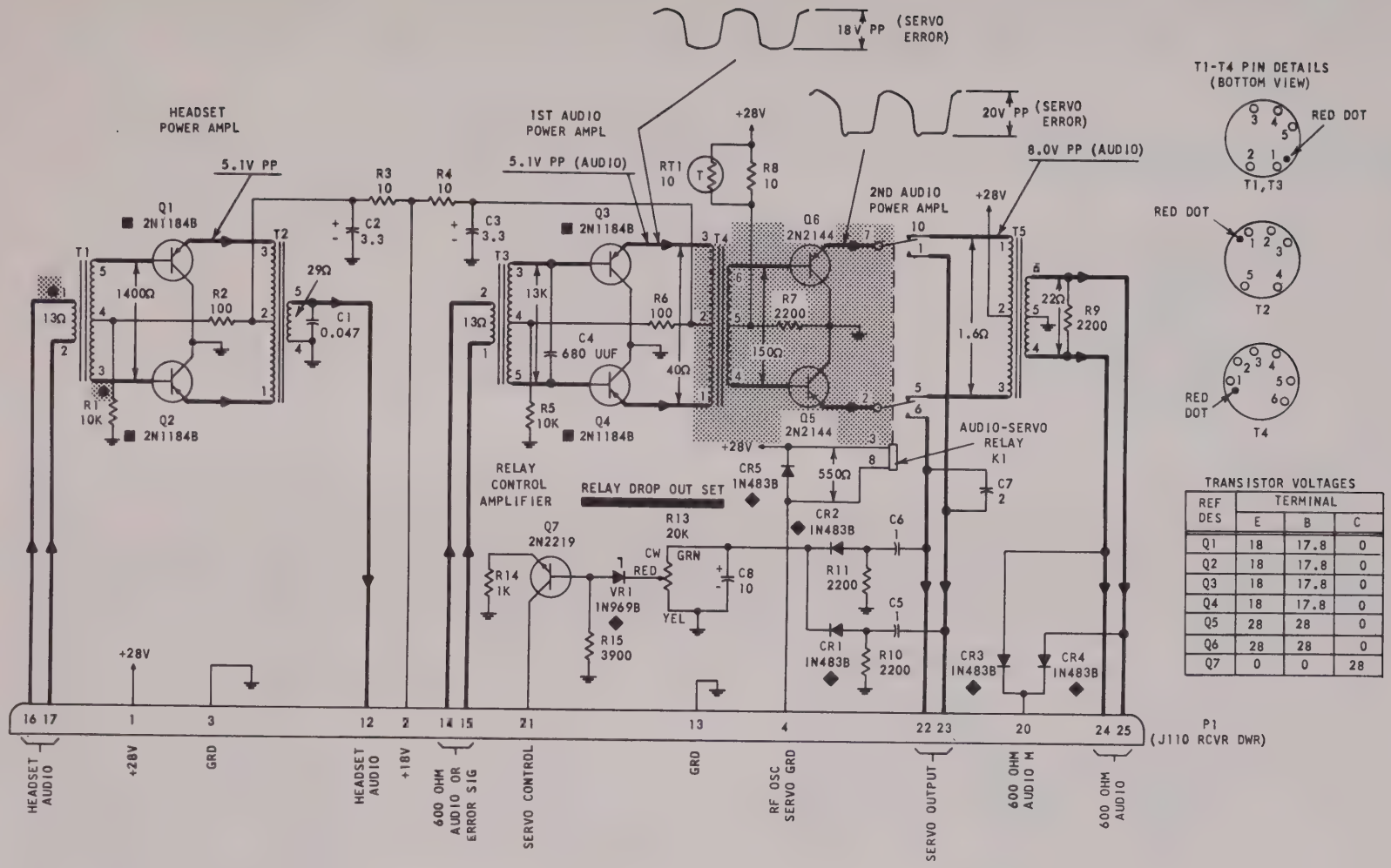
NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH 1A2A8, 1A4A8, 1A14A8, OR 1A16A8.
3. DC VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT, AND ALL CONTROLS SET IN NORMAL OPERATING POSITION.
4. RESISTANCES OF TRANSFORMER WINDINGS OF LESS THAN 1 OHM HAVE BEEN OMITTED.
5. SCHEMATIC DIAGRAM FOR MOTOROLA PART NO. 01-38580A01

TRANSISTOR VOLTAGES

REF DES	TERMINAL		
	E	B	C
Q1	18	17.8	0
Q2	18	17.8	0
Q3	18	17.8	0
Q4	18	17.8	0
Q5	28	28	0
Q6	28	28	0

Figure 38. Receiver Audio Amplifier, Schematic Diagram



T1-T4 PIN DETAILS (BOTTOM VIEW)

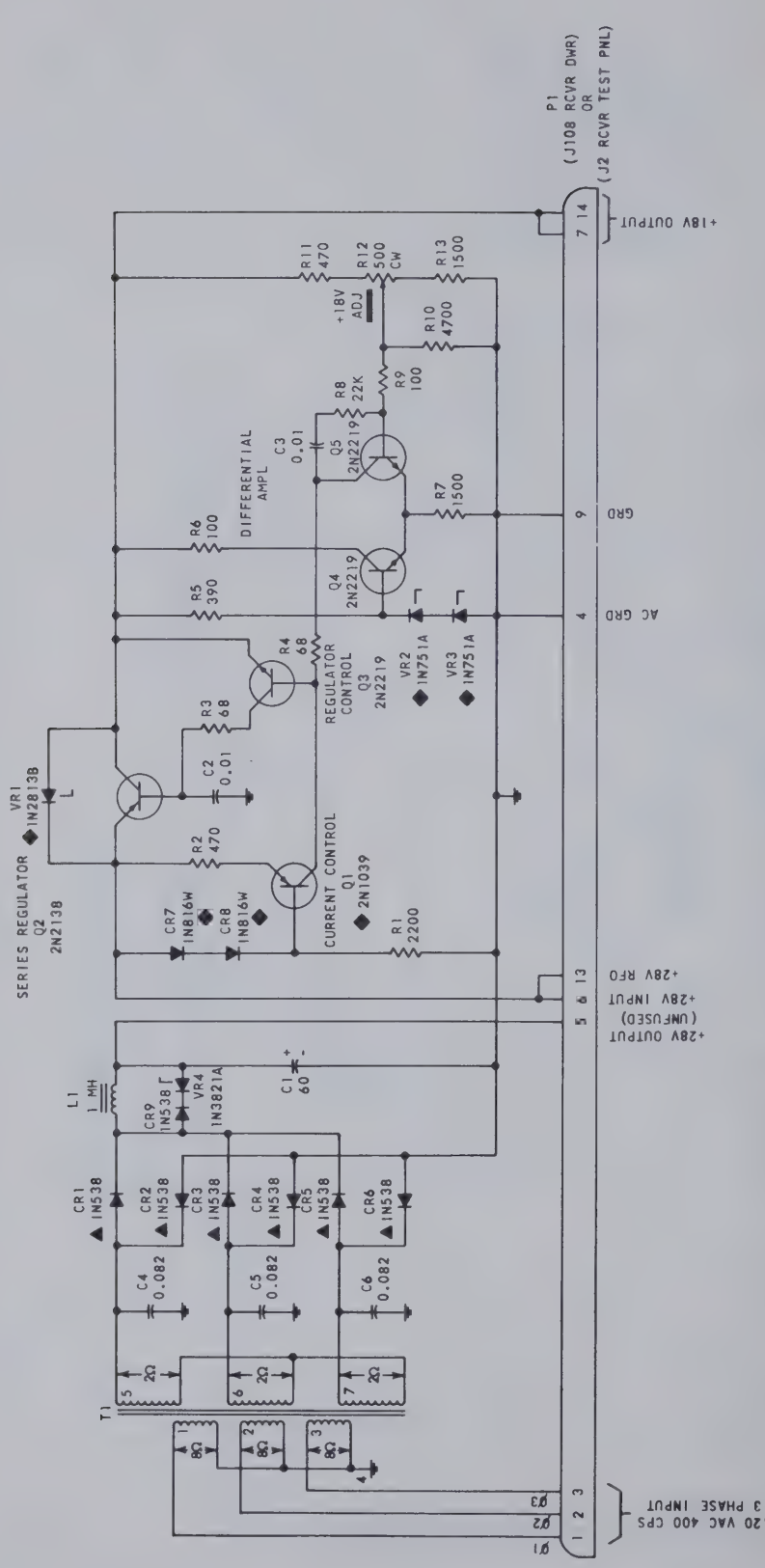
TRANSISTOR VOLTAGES

REF DES	TERMINAL		
	E	B	C
Q1	18	17.8	0
Q2	18	17.8	0
Q3	18	17.8	0
Q4	18	17.8	0
Q5	28	28	0
Q6	28	28	0
Q7	0	0	28

NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH 1A11A8.
3. DC VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND, NO SIGNAL INPUT AND ALL CONTROLS SET IN NORMAL OPERATING POSITION.
4. RESISTANCES OF TRANSFORMER WINDINGS OF LESS THAN 1 OHM HAVE BEEN OMITTED.
5. SCHEMATIC DIAGRAM FOR MOTOROLA PART NO. 01-38600A01.

Figure 39. Receiver Audio-Servo Amplifier, Schematic Diagram



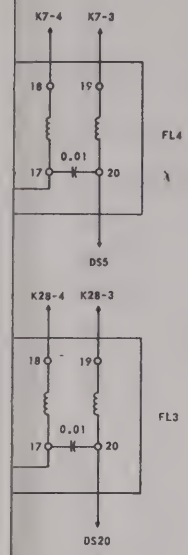
TRANSISTOR VOLTAGES

REF DES	TERMINAL		
	E	B	C
Q1	25.6	25.5	19
Q2	26.8	26.2	18
Q3	18	19	25
Q4	10	10.2	17.9
Q5	10	10.5	18.6

NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH 1A2A7, 1A4A7, 1A14A7, OR 1A16A7, FOR MANUAL RECEIVER; 1A11A7 FOR AUTOMATIC RECEIVER; 1A1A7 FOR MODULE TEST SET.
3. VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND; INPUT OF 120V AC, 400 CPS, 3 PHASE; 18 OHM 25 WATT RESISTIVE LOAD FROM PIN 7 TO GROUND; AND CONTROLS SET IN NORMAL OPERATING POSITION.
4. RESISTANCES OF COILS OF LESS THAN 1 OHM HAVE BEEN OMITTED.
5. SCHEMATIC DIAGRAM FOR MOTOROLA PT NO. 01-38579A01
6. P1 CONNECTS TO RCVR DWR FOR AN/TRC-87 OR RCVR TEST PNL FOR MODULE TEST SET.

Figure 40. Receiver Power Supply, Schematic Diagram



NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH 1A9.
3. SWITCHES S5 AND S6 ARE SHOWN FULLY CCW (POSITION 1).
4. PIN 1 LOCATED AT FIRST CW POSITION FROM RED DOT FOR SWITCHES S5 AND S6.
5. SCHEMATIC DIAGRAM FOR MOTOROLA PART NO. 01-38591A01.
6. DC RESISTANCE VALUES FOR COILS AND TRANSFORMERS OF LESS THAN ONE OHM ARE OMITTED.

1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	M

TABLE 1.
AUTO CHANNEL SELECTOR POSITIONS

TABLE 2.
AUDIO CHANNEL SELECTOR SWITCH POSITIONS

POSITION	LABELED
1	A
2	B
3	C
4	D
5	AUTO

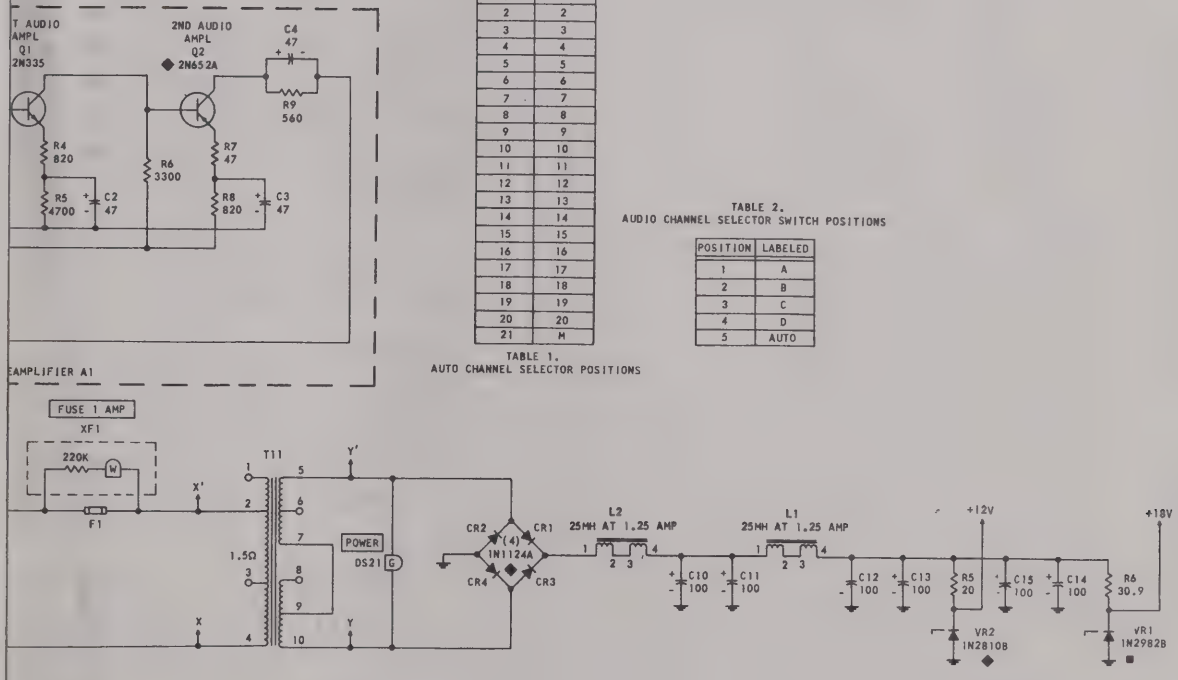
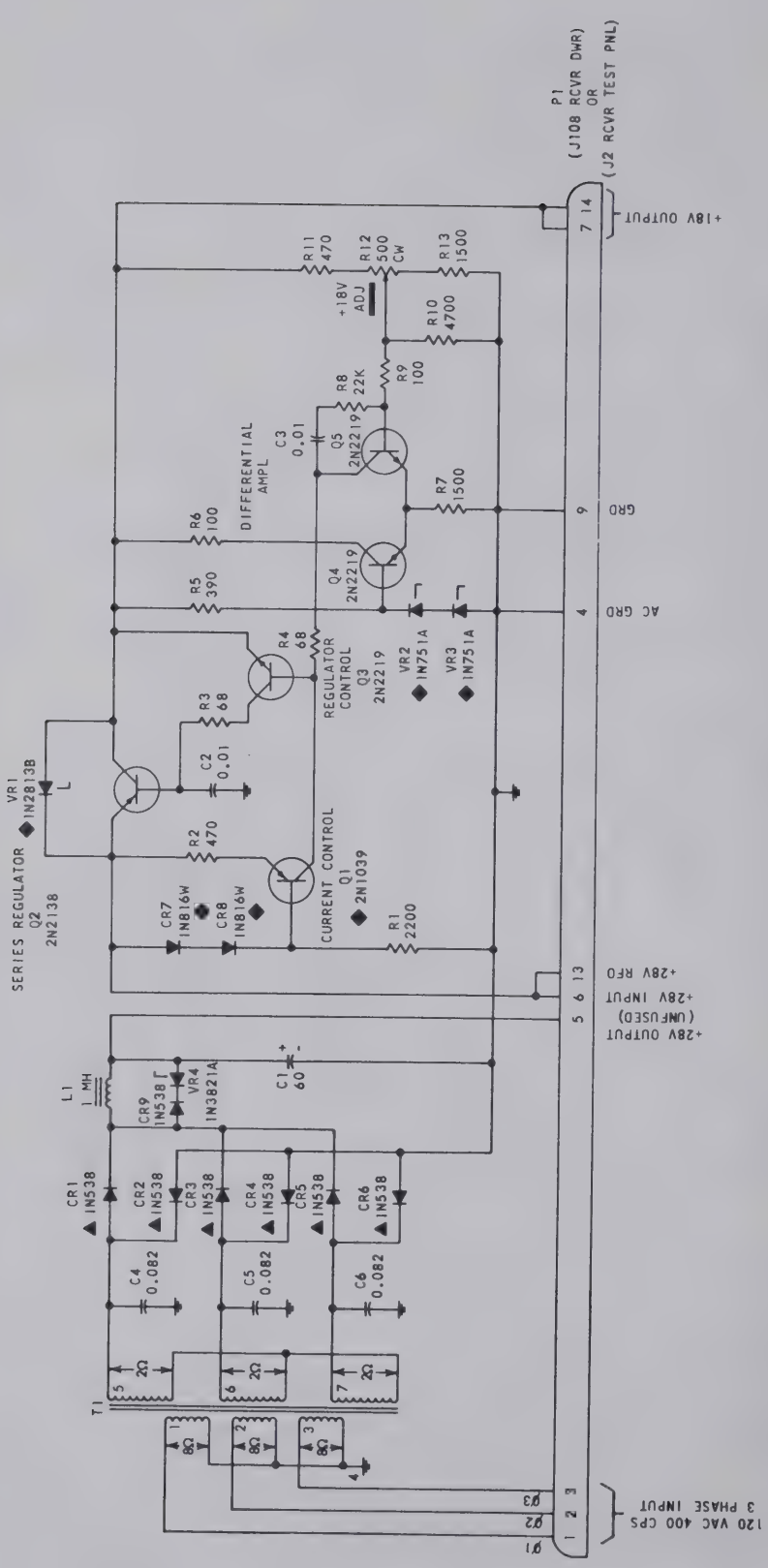


Figure 41. Remote Control Unit, Schematic Diagram



TRANSISTOR VOLTAGES

REF DES	TERMINAL E	B	C
Q1	25.6	25.5	19
Q2	26.8	26.2	18
Q3	18	19	25
Q4	10	10.2	17.9
Q5	10	10.5	18.6

NOTES:

1. UNLESS OTHERWISE INDICATED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS.
2. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH 1A2A7, 1A4A7, 1A14A7, OR 1A16A7, FOR MANUAL RECEIVER; 1A11A7 FOR AUTOMATIC RECEIVER; 1A1A7 FOR MODULE TEST SET.
3. VOLTAGE MEASUREMENTS TAKEN WITH A VTVM WITH RESPECT TO GROUND; INPUT OF 120V AC, 400 CPS, 3 PHASE, 18 OHM 25 WATT RESISTIVE LOAD FROM PIN 7 TO GROUND; AND CONTROLS SET IN NORMAL OPERATING POSITION.
4. RESISTANCES OF COILS OF LESS THAN 1 OHM HAVE BEEN OMITTED.
5. SCHEMATIC DIAGRAM FOR MOTOROLA PT NO. 01-38579A01
6. P1 CONNECTS TO RCVR DWR FOR AN/TRC-87 OR RCVR TEST PNL FOR MODULE TEST SET.

Figure 40. Receiver Power Supply, Schematic Diagram

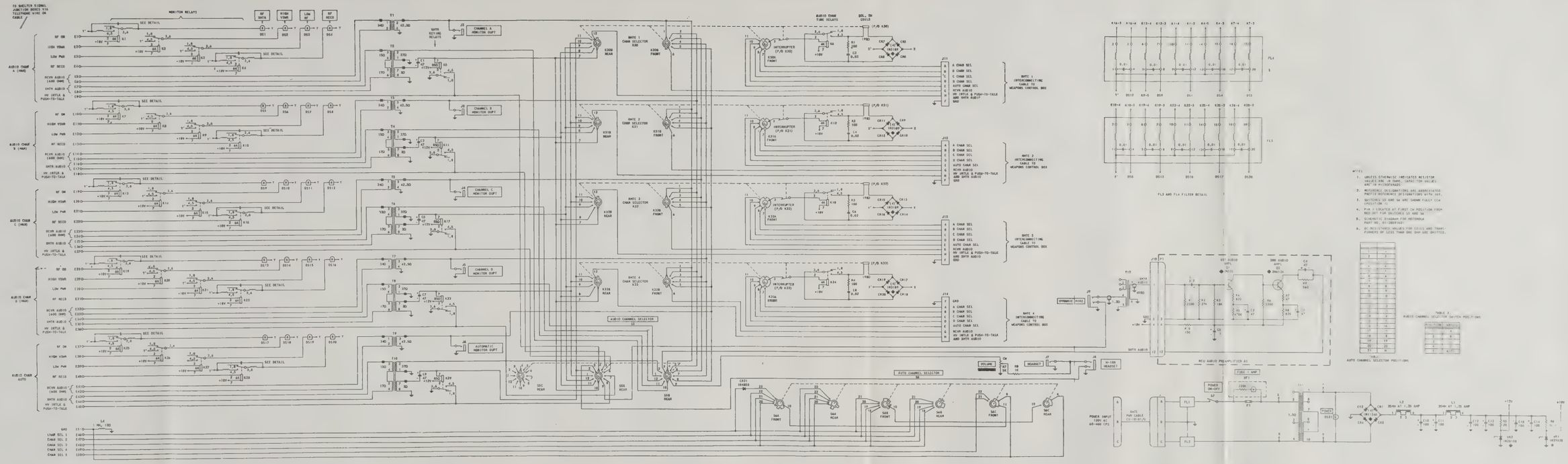
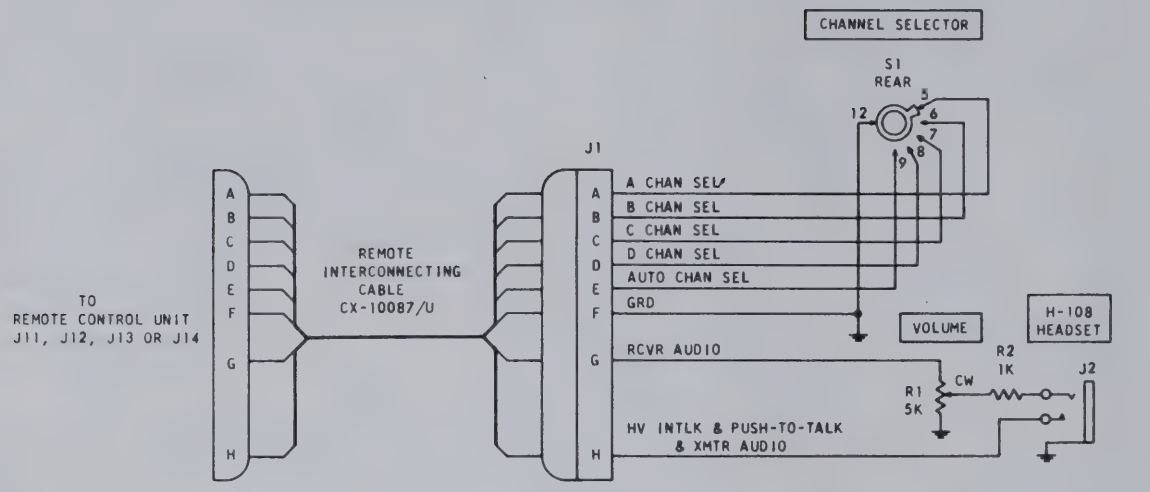


Figure 41. Remote Control Unit, Schematic Diagram



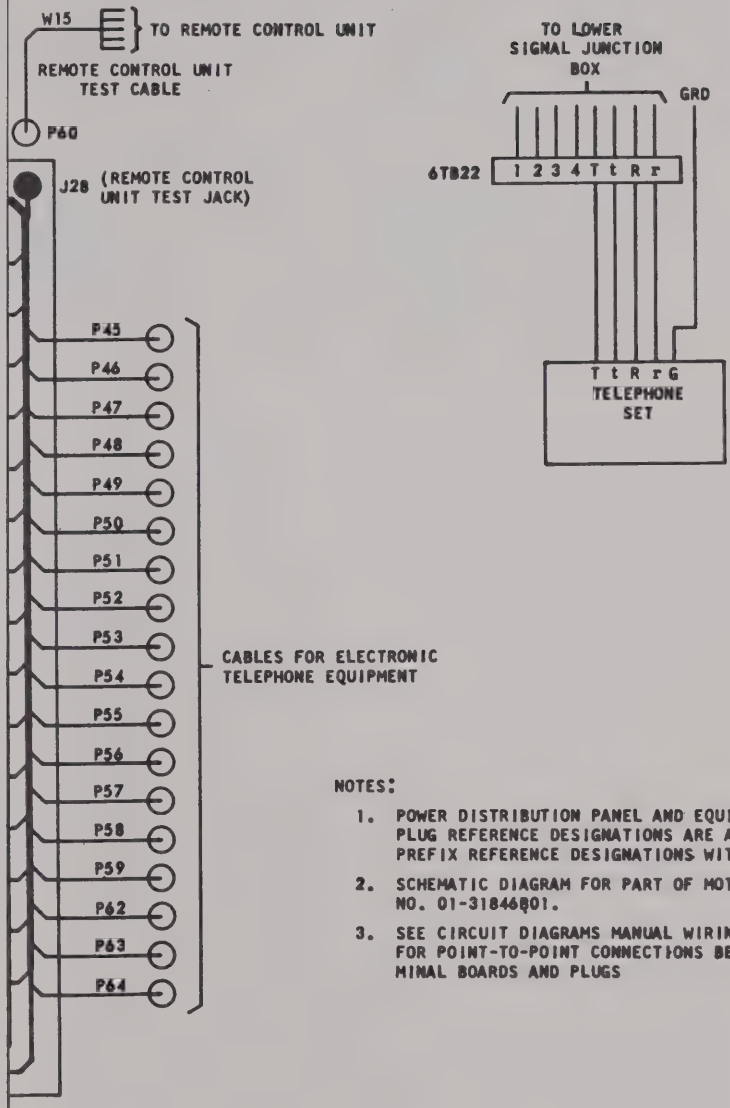
NOTES:

1. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH: 1A5, 1A6, 1A7, OR 1A8.
2. SWITCH S1 IS SHOWN FULLY CCW (POSITION 1)
3. PIN 1 LOCATED AT FIRST CW POSITION FROM RED DOT.

TABLE 1
CHANNEL SELECTOR SWITCH POSITIONS

POSITION	LABELED
1	A
2	B
3	C
4	D
5	AUTO

Figure 42. Weapons Control Box, Schematic Diagram



NOTES:

1. POWER DISTRIBUTION PANEL AND EQUIPMENT RACK PLUG REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH 6.
2. SCHEMATIC DIAGRAM FOR PART OF MOTOROLA PART NO. 01-31846Q01.
3. SEE CIRCUIT DIAGRAMS MANUAL WIRING TABLES FOR POINT-TO-POINT CONNECTIONS BETWEEN TERMINAL BOARDS AND PLUGS

Figure 43. Shelter Schematic Diagram (Sheet 1 of 2, Secondary Power Circuits)

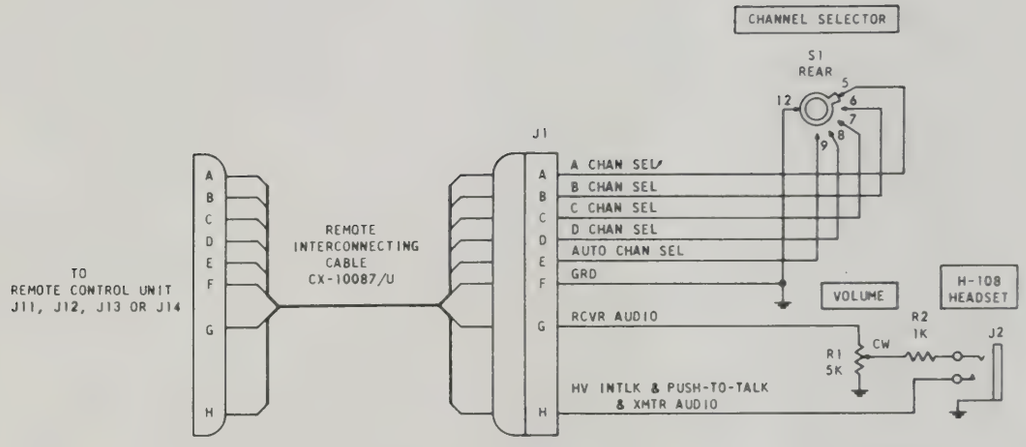


TABLE 1
CHANNEL SELECTOR SWITCH POSITIONS

POSITION	LABELED
1	A
2	B
3	C
4	D
5	AUTO

NOTES:

1. REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX REFERENCE DESIGNATIONS WITH: 1A5, 1A6, 1A7, OR 1A8.
2. SWITCH S1 IS SHOWN FULLY CCW (POSITION 1)
3. PIN 1 LOCATED AT FIRST CW POSITION FROM RED DOT.

Figure 42. Weapons Control Box, Schematic Diagram

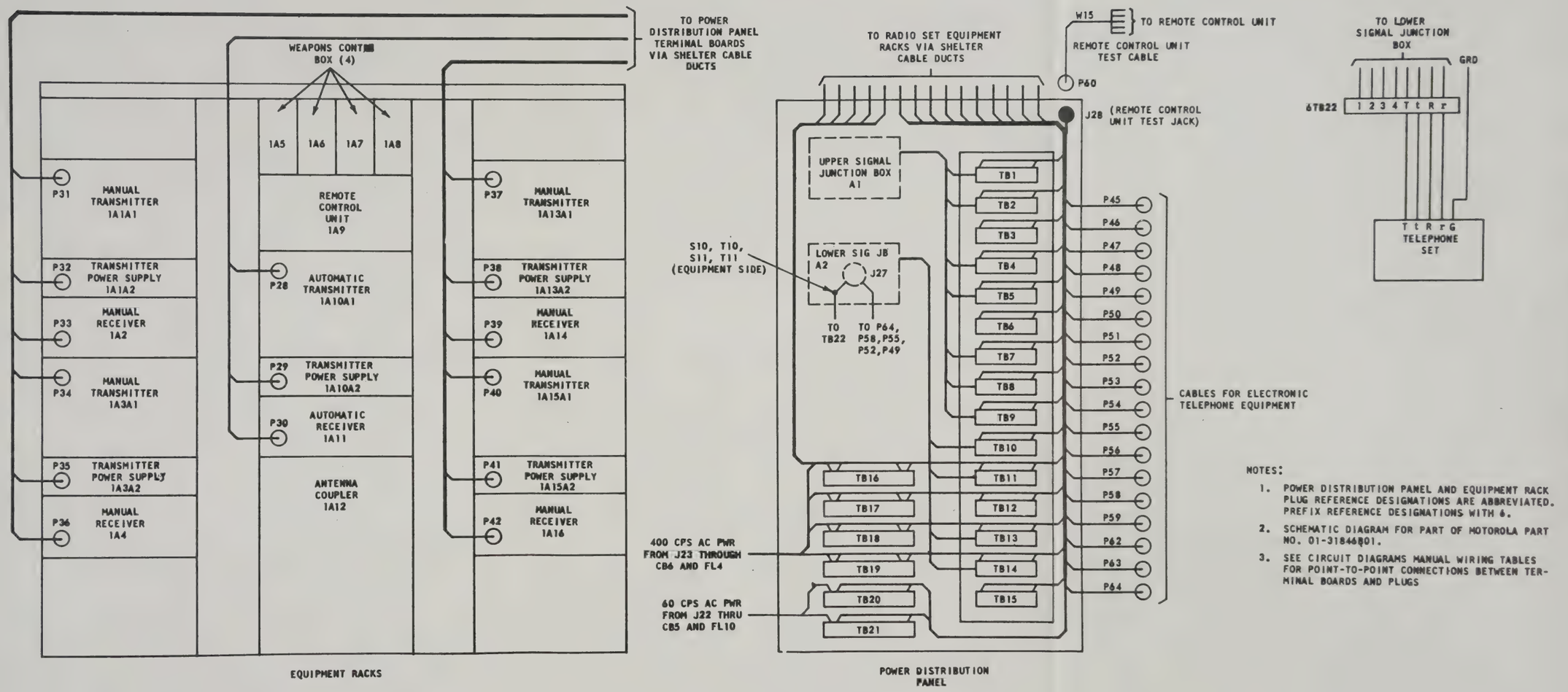


Figure 43. Shelter Schematic Diagram (Sheet 1 of 2, Secondary Power Circuits)

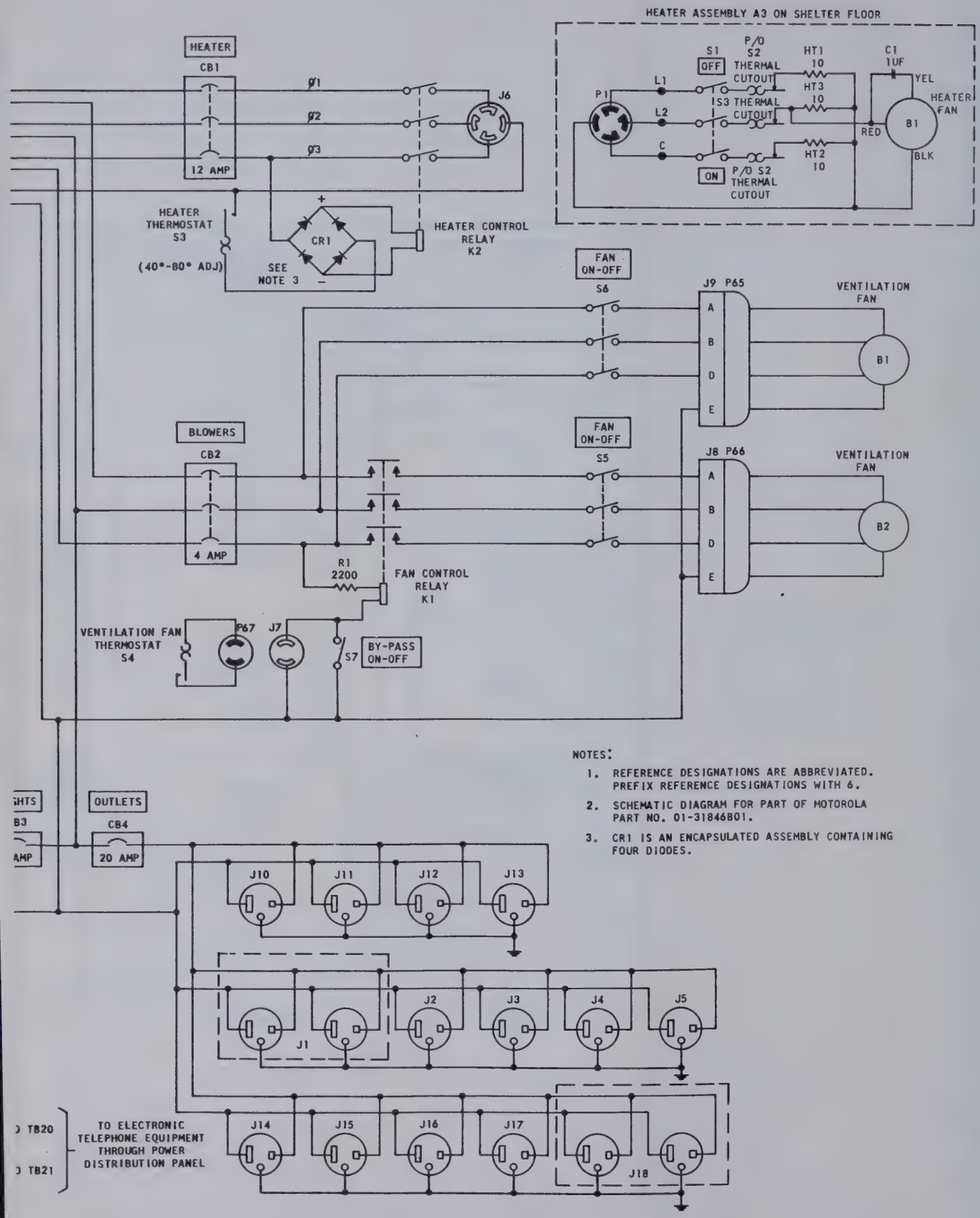


Figure 43. Shelter Schematic Diagram (Sheet 2 of 2 Main Power Circuits)

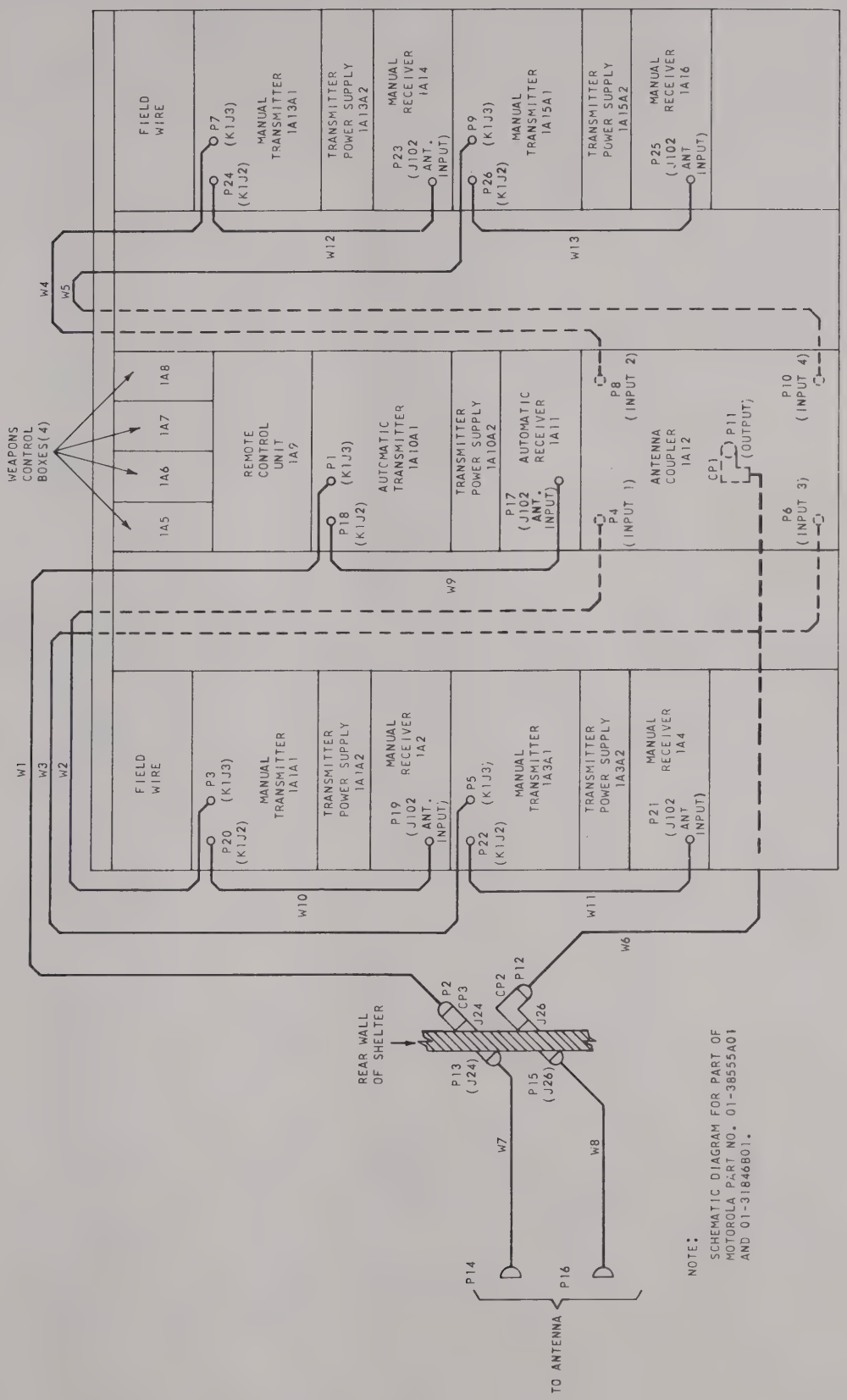


Figure 46. Shelter Coaxial Cabling Diagram

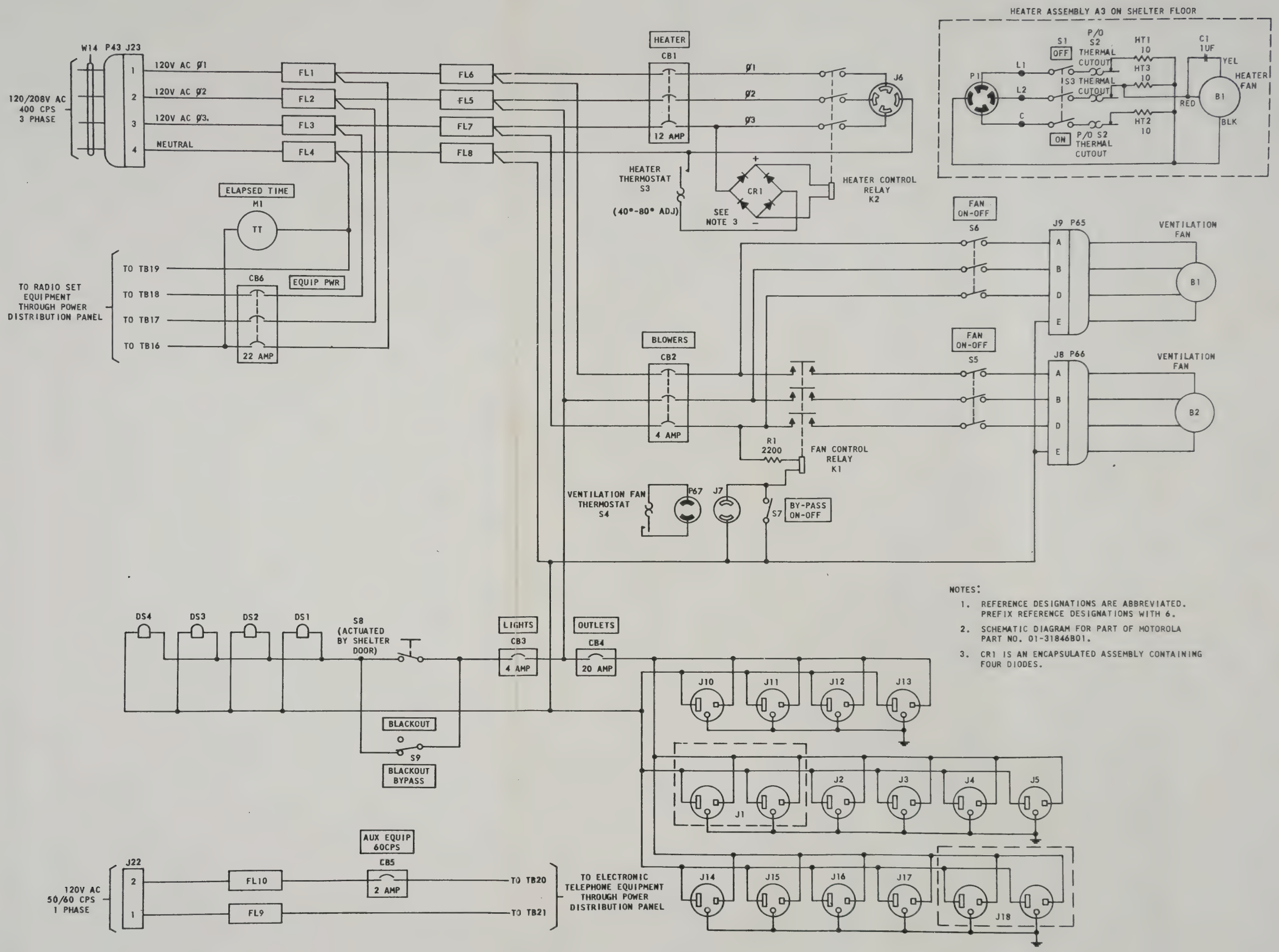


Figure 43. Shelter Schematic Diagram (Sheet 2 of 2 Main Power Circuits)

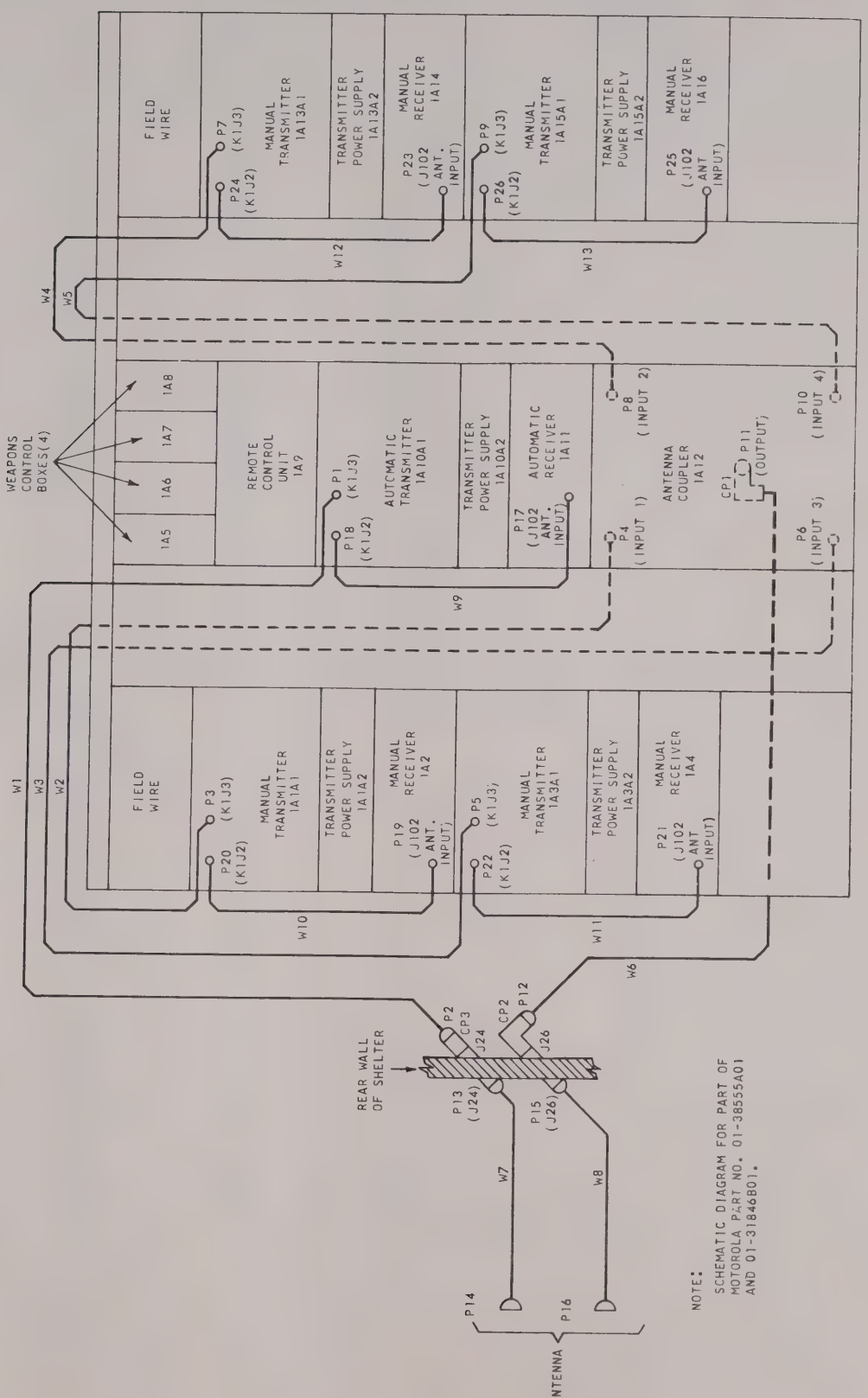


Figure 46. Shelter Coaxial Cabling Diagram

Table 4. Power Distribution Panel Wiring

FROM	TO	WIRE COLOR	FUNCTION
REMOTE CONTROL UNIT TEST JACK			
J28-1	TB7-1	93	Rf Recd
-2	TB7-3	5	Rcvr Audio (600 ohm)
-3	TB7-5	6	Rcvr Audio (600 ohm)
-4	TB7-8	95	Hv Intlk & Push-To-Talk
-5	TB7-9	94	Rf On
-6	TB8-1	3	Xmtr Audio
-7	TB8-3	4	Xmtr Audio
-8	TB8-4	9	Low Pwr Ind
-9	TB8-6	7	High Vswr
-10	TB7-4	0	Shield
-11	TB6-6	901	Chan Sel 1
-12	TB6-7	902	Chan Sel 2
-13	TB6-8	903	Chan Sel 3
-14	TB6-9	904	Chan Sel 4
-15	TB6-10	905	Chan Sel 5
-16	-	-	Not Used
-17	-	-	Not Used
-18	-	-	Not Used
-19	-	-	Not Used
POWER DISTRIBUTION PANEL TERMINAL BOARDS			
TB1-1	P33-2	93	Carrier Ind Switch
-1	P50-G	1	
-1	UP. SIG JB T2	90	
-2	P33-3	94	Carrier Ind Switch
-2	P50-H	91	
-2	TB3-6	*0	
-3	P33-5	3	600 Ohm Audio
-3	P50-A	3	
-3	UP. SIG JB S1	93	
-4	TB2-2	0	Grd
-4	P33-13	0	
-5	P33-6	4	600 Ohm Audio
-5	P50-B	7	
-5	UP. SIG JB T1	91	
-6	P33-14	6	Spare
-7	P33-12	98	Spare
-8	P31-2	93	Hv Intlk & Push-To-Talk
-8	P50-E	93	
-8	UP. SIG JB S2	94	
-9	P31-3	94	Rf On Ind
-9	UP. SIG JB T4	95	

*Disconnected when electronic telephone equipment is used

Table 4. Power Distribution Panel Wiring (Cont)

FROM	TO	WIRE COLOR	FUNCTION
POWER DISTRIBUTION PANEL TERMINAL BOARDS (Cont)			
TB1-10	P33-4	95	Rcvr Muting
-10	P31-4	95	
TB2-1	P31-5	3	Remote Audio
-1	P50-C	92	
-1	UP. SIG JB S3	96	
-2	TB2-9	0	Grd
-2	TB1-4	0	
-2	TB3-6	0	
-3	P31-6	4	Remote Audio
-3	P50-D	2	
-3	UP. SIG JB T3	97	
-4	P31-8	9	Low Pwr
-4	UP. SIG JB S4	98	
-5	P31-9	8	Spare
-6	P31-10	7	Vswr Ind
-6	UP. SIG JB S5	906	
-7	P31-11	5	Spare
-8	P31-12	98	Spare
-9	P31-13	0	Grd
-9	TB2-2	0	
-9	P50-F	0	
-9	P50-L	90	
-10	P31-14	6	Spare
TB3-1	P33-15	901	Spare
-1	P31-15	901	
-2	P33-16	902	Spare
-2	P31-16	902	
-3	P33-17	903	Spare
-3	P31-17	903	
-4	P33-18	904	Spare
-4	P31-18	904	
-5	P33-19	905	Spare
-5	P31-19	905	
-6	TB1-2	0	Grd
-6	TB3-7	0	
-6	TB2-2	0	
-6	TB8-10	0	
-7	TB4-2	0	Grd
-7	TB3-6	0	
-7	TB3-8	0	
-7	TB5-2	0	

Table 4. Power Distribution Panel Wiring (Cont)

FROM	TO	WIRE COLOR	FUNCTION
POWER DISTRIBUTION PANEL TERMINAL BOARDS (Cont)			
TB3- 8	TB7-2	0	Grd
- 8	TB3-7	0	
- 8	TB3-9	0	
- 8	UP. SIG JB T20	0	
- 9	TB10-2	0	Grd
- 9	TB3-8	0	
- 9	TB3-10	0	
- 9	TB11-2	0	
-10	TB13-2	0	Grd
-10	TB3-9	0	
-10	TB14-2	0	
-10	GROUND LUG	0	
TB4- 1	P36-2	93	Carrier Ind Switch
- 1	P53-G	1	
- 1	UP. SIG JB T9	907	
- 2	P36-3	94	Carrier Ind Switch
- 2	P53-H	91	
- 2	TB3-7	*0	
- 3	P36-5	3	600 Ohm Audio
- 3	P53-A	3	
- 3	UP. SIG JB S8	908	
- 4	TB5-2	0	Grd
- 4	P36-13	0	
- 5	P36-6	4	600 Ohm Audio
- 5	P53-B	7	
- 5	UP. SIG JB T8	913	
- 6	P36-14	6	Spare
- 7	P36-12	98	Spare
- 8	P34-2	93	Hv Intlk & Push-To-Talk
- 8	P53-E	93	
- 8	UP. SIG JB S9	914	
- 9	P34-3	94	Rf On Ind
- 9	UP. SIG JB T11	915	
-10	P36-4	95	Rcvr Muting
-10	P34-4	95	

*Disconnected when electronic telephone equipment is used

Table 4. Power Distribution Panel Wiring (Cont)

FROM	TO	WIRE COLOR	FUNCTION
POWER DISTRIBUTION PANEL TERMINAL BOARDS (Cont)			
TB5- 1	P34-5	3	Remote Audio
- 1	P53-C	92	
- 1	UP. SIG JB S10	916	
- 2	TB5-9	0	Grd
- 2	TB4-4	0	
- 2	TB3-7	0	
- 3	P34-6	4	Remote Audio
- 3	P53-D	2	
- 3	UP. SIG JB T10	917	
- 4	P34-8	9	Low Pwr Ind
- 4	UP. SIG JB S11	918	
- 5	P34-9	8	Spare
- 6	P34-10	7	Vswr Ind
- 6	UP. SIG JB S12	924	
- 7	P34-11	5	Spare
- 8	P34-12	98	Spare
- 9	P34-13	0	Grd
- 9	TB5-2	0	
- 9	P53-F	0	
- 9	P53-L	90	
-10	P34-14	6	Spare
TB6- 1	P36-15	901	Spare
- 1	P34-15	901	
- 2	P36-16	902	Spare
- 2	P34-16	902	
- 3	P36-17	903	Spare
- 3	P34-17	903	
- 4	P36-18	904	Spare
- 4	P34-18	904	
- 5	P36-19	905	Spare
- 5	P34-19	905	
- 6	TB9-1	901	Chan Sel 1
- 6	P63-G	6	
- 6	J28-11	901	
- 7	TB9-2	902	Chan Sel 2
- 7	P63-E	96	
- 7	J28-12	902	
- 8	TB9-3	903	Chan Sel 3
- 8	P63-C	4	
- 8	J28-13	903	

Table 4. Power Distribution Panel Wiring (Cont)

FROM	TO	WIRE COLOR	FUNCTION
POWER DISTRIBUTION PANEL TERMINAL BOARDS (Cont)			
TB6- 9	TB9-4	904	Chan Sel 4
- 9	P63-A	94	
- 9	J28-14	904	
-10	TB9-5	905	Chan Sel 5
-10	J28-15	905	
TB7- 1	P30-2	93	Carrier Ind Switch
- 1	P47-G	1	
- 1	UP. SIG JB T15	925	
- 1	J28-1	93	
- 2	P30-3	94	Carrier Ind Switch
- 2	P47-H	91	
- 2	TB3-8	*0	
- 3	P30-5	3	600 Ohm Audio
- 3	P47-A	3	
- 3	UP. SIG JB T16	926	
- 3	J28-2	5	
- 4	TB8-2	0	Grd
- 4	P63-J	95	
- 4	J28-10	0	
- 5	P30-6	4	600 Ohm Audio
- 5	P47-B	7	
- 5	UP. SIG JB S16	927	
- 5	J28-3	6	
- 6	P30-14	6	Spare
- 6	P28-14	6	
- 7	P30-12	98	Spare
- 8	P28-2	93	Hv Intlk & Push-To-Talk
- 8	P47-E	93	
- 8	UP. SIG JB T17	928	
- 8	J28-4	95	
- 9	P28-3	94	Rf On Ind
- 9	UP. SIG JB S17	934	
- 9	J28-5	94	
-10	P28-4	95	Rcvr Muting
-10	P30-4	95	
TB8- 1	P28-5	3	Remote Audio
- 1	P47-C	92	
- 1	UP. SIG JB T18	935	
- 1	J28-6	3	

*Disconnected when electronic telephone equipment is used

Table 4. Power Distribution Panel Wiring (Cont)

FROM	TO	WIRE COLOR	FUNCTION
POWER DISTRIBUTION PANEL TERMINAL BOARDS (Cont)			
TB8- 2	P64-F	9	Grd
- 2	TB7-4	0	
- 2	TB8-9	0	
- 3	P28-6	4	Remote audio
- 3	P47-D	2	
- 3	UP. SIG JB S18	936	
- 3	J28-7	4	
- 4	P28-8	9	Low Pwr Ind
- 4	UP. SIG JB T19	937	
- 4	J28-8	9	
- 5	P28-9	8	Spare
- 6	P28-10	7	Vswr Ind
- 6	UP. SIG JB S19	938	
- 6	J28-9	7	
- 7	P28-11	5	Spare
- 8	P28-12	98	Spare
- 9	TB8-10	0	Grd
- 9	TB8-2	0	
- 9	P47-F	0	
- 9	P47-L	90	
-10	P28-13	0	Grd
-10	P30-13	0	
-10	TB8-9	0	
-10	TB3-6	0	
TB9- 1	P28-15	901	Remote Chan Sel 1
- 1	P30-15	901	
- 1	UP. SIG JB S20	901	
- 1	TB6-6	901	
- 2	P28-16	902	Remote Chan Sel 2
- 2	P30-16	902	
- 2	UP. SIG JB T21	902	
- 2	TB6-7	902	
- 3	P28-17	903	Remote Chan Sel 3
- 3	P30-17	903	
- 3	UP. SIG JB S21	903	
- 3	TB6-8	903	
- 4	P28-18	904	Remote Chan Sel 4
- 4	P30-18	904	
- 4	UP. SIG JB T22	904	
- 4	TB6-9	904	

Table 4. Power Distribution Panel Wiring (Cont)

FROM	TO	WIRE COLOR	FUNCTION
POWER DISTRIBUTION PANEL TERMINAL BOARDS (Cont)			
TB9- 5	P28-19	905	Remote Chan Sel 5
- 5	P30-19	905	
- 5	UP. SIG JB S22	905	
- 5	TB6-10	905	
- 6	P46-E	4	Tie Point (Enable)
- 6	P64-E	7	
- 7	P46-A	6	Tie Point (Receive Line Out)
- 7	P64-C	2	
- 8	P46-B	96	Tie Point (Receive Line Out)
- 8	P64-D	92	
- 9	P46-J	5	Tie Point (Transmit Line In)
- 9	P64-G	3	
-10	P46-K	95	Tie Point (Transmit Line In)
-10	P64-H	93	
TB10- 1	P39-2	93	Carrier Ind Switch
- 1	P56-G	1	
- 1	LWR. SIG JB T2	945	
- 2	P39-3	94	Carrier Ind Switch
- 2	P56-H	91	
- 2	TB3-9	*0	
- 3	P39-5	3	600 Ohm Audio
- 3	P56-A	3	
- 3	LWR. SIG JB S1	946	
- 4	TB11-2	0	Grd
- 4	P39-13	0	
- 5	P39-6	4	600 Ohm Audio
- 5	P56-B	7	
- 5	LWR. SIG JB T1	947	
- 6	P39-14	6	Spare
- 7	P39-12	98	Spare
- 8	P37-2	93	Hv Intlk & Push-To-Talk
- 8	P56-E	93	
- 8	LWR. SIG JB S2	948	
- 9	P37-3	94	Rf On Ind
- 9	LWR. SIG JB T4	956	
-10	P39-4	95	Rcvr Muting
-10	P37-4	95	

*Disconnected when electronic telephone equipment is used

Table 4. Power Distribution Panel Wiring (Cont)

FROM	TO	WIRE COLOR	FUNCTION
POWER DISTRIBUTION PANEL TERMINAL BOARDS (Cont)			
TB11- 1	P37-5	3	Remote Audio
- 1	P56-C	92	
- 1	LWR. SIG JB S3	957	
- 2	TB11-9	0	Grd
- 2	TB10-4	0	
- 2	TB3-9	0	
- 3	P37-6	4	Remote Audio
- 3	P56-D	2	
- 3	LWR. SIG JB T3	958	
- 4	P37-8	9	Low Pwr Ind
- 4	LWR JB S4	8	
- 5	P37-9	8	Spare
- 6	P37-10	7	Vswr Ind
- 6	LWR. SIG JB S5	91	
- 7	P37-11	5	Spare
- 8	P37-12	98	Spare
- 9	P37-13	0	Grd
- 9	TB11-2	0	
- 9	P56-F	0	
- 9	P56-L	90	
-10	P37-14	6	Spare
TB12- 1	P39-15	901	Spare
- 1	P37-15	901	
- 2	P39-16	902	Spare
- 2	P37-16	902	
- 3	P39-17	903	Spare
- 3	P37-17	903	
- 4	P39-18	904	Spare
- 4	P37-18	904	
- 5	P39-19	905	Spare
- 5	P37-19	905	
- 6	-	-	Not Used
- 7	-	-	Not Used
- 8	-	-	Not Used
- 9	-	-	Not Used
-10	-	-	Not Used
TB13 - 1	P42-2	93	Carrier Ind Switch
- 1	P59-G	1	
- 1	LWR. SIG JB T5	94	
- 2	P42-3	94	Carrier Ind Switch

Table 4. Power Distribution Panel Wiring (Cont)

FROM	TO	WIRE COLOR	FUNCTION
POWER DISTRIBUTION PANEL TERMINAL BOARDS (Cont)			
TB13 - 2	P59-H	91	Carrier Ind Switch
- 2	TB3-10	*0	
- 3	P42-5	3	600 Ohm Audio
- 3	P59-A	3	
- 3	LWR. SIG JB S6	90	
- 4	TB14-2	0	Grd
- 4	P42-13	0	
- 5	P42-6	4	600 Ohm Audio
- 5	P59-B	7	
- 5	LWR. SIG JB T6	96	
- 6	P42-14	6	Spare
- 7	P42-12	98	Spare
- 8	P40-2	93	Hv Intlk & Push-To-Talk
- 8	P59-E	93	
- 8	LWR. SIG JB S7	93	
- 9	P40-3	94	Rf On Ind
- 9	LWR. SIG JB T7	98	
-10	P42-4	95	Rcvr Muting
-10	P40-4	95	
TB14 - 1	P40-5	3	Remote Audio
- 1	P59-C	92	
- 1	LWR. SIG JB S8	95	
- 2	TB14-9	0	Grd
- 2	TB13-4	0	
- 2	TB3-10	0	
- 3	P40-6	4	Remote Audio
- 3	P59-D	2	
- 3	LWR. SIG JB T8	926	
- 4	P40-8	9	Low Pwr Ind
- 4	LWR. SIG JB S9	97	
- 5	P40-9	8	Spare
- 6	P40-10	7	Vswr Ind
- 6	LWR. SIG JB T9	925	
- 7	P40-11	5	Spare
- 8	P40-12	98	Spare
- 9	P40-13	0	Grd
- 9	TB14-2	0	

*Disconnected when electronic telephone equipment is used

Table 4. Power Distribution Panel Wiring (Cont)

FROM	TO	WIRE COLOR	FUNCTION
POWER DISTRIBUTION PANEL TERMINAL BOARDS (Cont)			
TB14- 9	P59-F	0	Grd
- 9	P59-L	90	
-10	P40-14	6	Spare
TB15- 1	P42-15	901	Spare
- 1	P40-15	901	
- 2	P42-16	902	Spare
- 2	P40-16	902	
- 3	P42-17	903	Spare
- 3	P40-17	903	
- 4	P42-18	904	Spare
- 4	P40-18	904	
- 5	P42-19	905	Spare
- 5	P40-19	905	
- 6	-	-	Not Used
- 7	-	-	Not Used
- 8	-	-	Not Used
- 9	-	-	Not Used
-10	-	-	Not Used
TB16- 1	LOAD SIDE OF CB6	92	120v ac Ø1
- 2	P29-2	8	120v ac Ø1
- 2	P30-9	8	
- 3	P32-2	8	120v ac Ø1
- 3	P33-9	8	
- 4	P35-2	8	120v ac Ø1
- 4	P36-9	8	
- 5	P38-2	8	120v ac Ø1
- 5	P39-9	8	
- 6	P41-2	8	120v ac Ø1
- 6	P42-9	8	
TB17- 1	LOAD SIDE OF CB6	94	120v ac Ø2
- 2	P29-3	7	120v ac Ø2
- 2	P30-10	7	
- 3	P32-3	7	120v ac Ø2
- 3	P33-10	7	
- 4	P35-3	7	120v ac Ø2
- 4	P36-10	7	
- 5	P38-3	7	120v ac Ø2
- 5	P39-10	7	
- 6	P41-3	7	120v ac Ø2
- 6	P42-10	7	

NOTE

All pins of TB16 and TB17 are interconnected through terminal board.

Table 4. Power Distribution Panel Wiring (Cont)

FROM	TO	WIRE COLOR	FUNCTION
POWER DISTRIBUTION PANEL TERMINAL BOARDS (Cont)			
TB18- 1	LOAD SIDE OF CB6	96	120v ac Ø3
- 2	P29-4	5	120v ac Ø3
- 2	P30-11	5	
- 3	P32-4	5	120v ac Ø3
- 3	P33-11	5	
- 4	P35-4	5	120v ac Ø3
- 4	P36-11	5	
- 5	P38-4	5	120v ac Ø3
- 5	P39-11	5	
- 6	P41-4	5	120v ac Ø3
- 6	P42-11	5	
TB19- 1	LOAD SIDE OF FL4	95	Ac Grd
- 2	P29-1	9	Ac Grd
- 2	P30-8	9	
- 3	P32-1	9	Ac Grd
- 3	P33-8	9	
- 4	P35-1	9	Ac Grd
- 4	P36-8	9	
- 5	P38-1	9	Ac Grd
- 5	P39-8	9	
- 6	P41-1	9	Ac Grd
- 6	P42-8	9	
TB20- 1	LOAD SIDE OF CB5	0	120v ac 60 cps Hot
- 2	P62-B	0	
- 2	P62-E	0	
- 3	P45-B	0	
- 4	P48-B	0	
- 5	P51-B	0	
- 6	P54-B	0	
- 6	P57-B	0	
TB21- 1	LOAD SIDE OF FL10	9	120v ac 60 cps Common
- 2	P62-A	9	
- 3	P45-E	9	
- 4	P48-E	9	
- 5	P51-E	9	
- 6	P54-E	9	
- 6	P57-E	9	

NOTE

All pins of TB18 thru TB21 are interconnected thru terminal board.

Table 5. Equipment Rack Wiring

FROM	TO	WIRE COLOR	FUNCTION
AUTOMATIC TRANSMITTER 1A10A1			
P28- 1	NO CONNECTION	0	Shield
- 2	TB7-8	93	Hv Intlk & Push-To-Talk
- 3	TB7-9	94	Rf On Ind
- 4	TB7-10	95	Rcvr Muting
- 5	TB8-1	3	Remote Audio
- 6	TB8-3	4	Remote Audio
- 7	SHELTER GROUND	0	Grd
- 8	TB8-4	9	Low Pwr Ind
- 9	TB8-5	8	Spare
-10	TB8-6	7	Vswr Ind
-11	TB8-7	5	Spare
-12	TB8-8	98	Spare
-13	TB8-10	0	Grd
-14	TB7-6	6	Spare
-15	TB9-1	901	Remote Chan Sel 1
-16	TB9-2	902	Remote Chan Sel 2
-17	TB9-3	903	Remote Chan Sel 3
-18	TB9-4	904	Remote Chan Sel 4
-19	TB9-5	905	Remote Chan Sel 5
TRANSMITTER POWER SUPPLY 1A10A2			
P29- 1	TB19-2	9	Ac Grd
- 2	TB16-2	8	120v ac Ø1
- 3	TB17-2	7	120v ac Ø2
- 4	TB18-2	5	120v ac Ø3
AUTOMATIC RECEIVER 1A11			
P30- 1	NO CONNECTION	0	Shield
- 2	TB7-1	93	Carrier Ind Switch
- 3	TB7-2	94	Carrier Ind Switch
- 4	TB7-10	95	Rcvr Muting
- 5	TB7-3	3	600 Ohm Audio
- 6	TB7-5	4	600 Ohm Audio
- 7	NO CONNECTION	-	Spare Pin
- 8	TB19-2	9	Ac Grd
- 9	TB16-2	8	120v ac Ø1
-10	TB17-2	7	120v ac Ø2
-11	TB18-2	5	120v ac Ø3
-12	TB7-7	98	Spare
-13	TB7-11	0	Grd
-14	TB7-6	6	Spare
-15	TB9-1	901	Remote Chan Sel 1
-16	TB9-2	902	Remote Chan Sel 2

Table 5. Equipment Rack Wiring (Cont)

FROM	TO	WIRE COLOR	FUNCTION
AUTOMATIC RECEIVER 1A11 (Cont)			
P30-17	TB9-3	903	Remote Chan Sel 3
-18	TB9-4	904	Remote Chan Sel 4
-19	TB9-5	905	Remote Chan Sel 5
MANUAL TRANSMITTER 1A1A1			
P31- 1	NO CONNECTION	0	Shield
- 2	TB1-8	93	Hv Intlk & Push-To-Talk
- 3	TB1-9	94	Rf On Ind
- 4	TB1-10	95	Rcvr Muting
- 5	TB2-1	3	Remote Audio
- 6	TB2-3	4	Remote Audio
- 7	SHELTER GROUND	0	Grd
- 8	TB2-4	9	Low Pwr Ind
- 9	TB2-5	8	Spare
-10	TB2-6	7	Vswr Ind
-11	TB2-7	5	Spare
-12	TB2-8	98	Spare
-13	TB2-2	0	Grd
-14	TB2-10	6	Spare
-15	TB3-1	901	Spare
-16	TB3-2	902	Spare
-17	TB3-3	903	Spare
-18	TB3-4	904	Spare
-19	TB3-5	905	Spare
TRANSMITTER POWER SUPPLY 1A1A2			
P32- 1	TB19-3	9	Ac Grd
- 2	TB16-3	8	120v ac
- 3	TB17-3	7	120v ac
- 4	TB18-3	5	120v ac
MANUAL RECEIVER 1A2			
P33- 1	NO CONNECTION	0	Shield
- 2	TB1-1	93	Carrier Ind Switch
- 3	TB1-2	94	Carrier Ind Switch
- 4	TB1-10	95	Rcvr Muting
- 5	TB1-3	3	600 Ohm Audio
- 6	TB1-5	4	600 Ohm Audio
- 7	NO CONNECTION	-	Spare Pin
- 8	TB19-3	9	Ac Grd
- 9	TB16-3	8	120v ac Ø1
-10	TB17-3	7	120v ac Ø2
-11	TB18-3	5	120v ac Ø3
-12	TB1-7	98	Spare

Table 5. Equipment Rack Wiring (Cont)

FROM	TO	WIRE COLOR	FUNCTION
MANUAL RECEIVER 1A2 (Cont)			
P33-13	TB1-4	0	Grd
-14	TB1-6	6	Spare
-15	TB3-1	901	Spare
-16	TB3-2	902	Spare
-17	TB3-3	903	Spare
-18	TB3-4	904	Spare
-19	TB3-5	905	Spare
MANUAL TRANSMITTER 1A3A1			
P34- 1	NO CONNECTION	0	Shield
- 2	TB4-8	93	Hv Intlk & Push-To-Talk
- 3	TB4-9	94	Rf On Ind
- 4	TB4-10	95	Rcvr Muting
- 5	TB5-1	3	Remote Audio
- 6	TB5-3	4	Remote Audio
- 7	SHELTER GROUND	0	Grd
- 8	TB5-4	9	Low Pwr Ind
- 9	TB5-5	8	Spare
-10	TB5-6	7	Vswr Ind
-11	TB5-7	5	Spare
-12	TB5-8	98	Spare
-13	TB5-9	0	Grd
-14	TB5-10	6	Spare
-15	TB6-1	901	Spare
-16	TB6-2	902	Spare
-17	TB6-3	903	Spare
-18	TB6-4	904	Spare
-19	TB6-5	905	Spare
TRANSMITTER POWER SUPPLY 1A3A2			
P35- 1	TB19-4	9	Ac Grd
- 2	TB16-4	8	120v ac
- 3	TB17-4	7	120v ac
- 4	TB18-4	5	120v ac
MANUAL RECEIVER 1A4			
P36- 1	NO CONNECTION	0	Shield
- 2	TB4-1	93	Carrier Ind Switch
- 3	TB4-2	94	Carrier Ind Switch
- 4	TB4-10	95	Rcvr Muting
- 5	TB4-3	3	600 Ohm Audio
- 6	TB4-5	4	600 Ohm Audio
- 7	NO CONNECTION	-	Spare Pin

Table 5. Equipment Rack Wiring (Cont)

FROM	TO	WIRE COLOR	FUNCTION
MANUAL RECEIVER 1A4 (Cont)			
P36- 8	TB19-4	9	Ac Grd
- 9	TB16-4	8	120v ac Ø1
-10	TB17-4	7	120v ac Ø2
-11	TB18-4	5	120v ac Ø3
-12	TB4-7	98	Spare
-13	TB4-4	0	Grd
-14	TB4-6	6	Spare
-15	TB6-1	901	Spare
-16	TB6-2	902	Spare
-17	TB6-3	903	Spare
-18	TB6-4	904	Spare
-19	TB6-5	905	Spare
MANUAL TRANSMITTER 1A13A1			
P37- 1	NO CONNECTION	0	Shield
- 2	TB10-8	93	Hv Intlk & Push-To-Talk
- 3	TB10-9	94	Rf On Ind
- 4	TB10-10	95	Rcvr Muting
- 5	TB11-1	3	Remote Audio
- 6	TB11-3	4	Remote Audio
- 7	SHELTER GROUND	0	Grd
- 8	TB11-4	9	Low Pwr Ind
- 9	TB11-5	8	Spare
-10	TB11-6	7	Vswr Ind
-11	TB11-7	5	Spare
-12	TB11-8	98	Spare
-13	TB11-9	0	Grd
-14	TB11-10	6	Spare
-15	TB12-1	901	Spare
-16	TB12-2	902	Spare
-17	TB12-3	903	Spare
-18	TB12-4	904	Spare
-19	TB12-5	905	Spare
TRANSMITTER POWER SUPPLY 1A13A2			
P38- 1	TB19-5	9	Ac Grd
- 2	TB16-5	8	120v ac
- 3	TB17-5	7	120v ac
- 4	TB18-5	5	120v ac
MANUAL RECEIVER 1A14			
P39- 1	NO CONNECTION	0	Shield
- 2	TB10-1	93	Carrier Ind Switch

Table 5. Equipment Rack Wiring (Cont)

FROM	TO	WIRE COLOR	FUNCTION
MANUAL RECEIVER 1A14 (Cont)			
P39- 3	TB10-2	94	Carrier Ind Switch
- 4	TB10-10	95	Rcvr Muting
- 5	TB10-3	3	600 Ohm Audio
- 6	TB10-5	4	600 Ohm Audio
- 7	NO CONNECTION	-	Spare Pin
- 8	TB19-5	9	Ac Grd
- 9	TB16-5	8	120v ac Ø1
-10	TB17-5	7	120v ac Ø2
-11	TB18-5	5	120v ac Ø3
-12	TB10-7	98	Spare
-13	TB10-4	0	Grd
-14	TB10-6	6	Spare
-15	TB12-1	901	Spare
-16	TB12-2	902	Spare
-17	TB12-3	903	Spare
-18	TB12-4	904	Spare
-19	TB12-5	905	Spare
MANUAL TRANSMITTER 1A15A1			
P40- 1	NO CONNECTION	0	Shield
- 2	TB13-8	93	Hv Intlk & Push-To-Talk
- 3	TB13-9	94	Rf On Ind
- 4	TB13-10	95	Rcvr Muting
- 5	TB14-1	3	Remote Audio
- 6	TB14-3	4	Remote Audio
- 7	SHELTER GROUND	0	Grd
- 8	TB14-4	9	Low Pwr Ind
- 9	TB14-5	8	Spare
-10	TB14-6	7	Vswr Ind
-11	TB14-7	5	Spare
-12	TB14-8	98	Spare
-13	TB14-9	0	Grd
-14	TB14-10	6	Spare
-15	TB15-1	901	Spare
-16	TB15-2	902	Spare
-17	TB15-3	903	Spare
-18	TB15-4	904	Spare
-19	TB15-5	905	Spare
TRANSMITTER POWER SUPPLY 1A15A2			
P41- 1	TB19-6	9	Ac Grd
- 2	TB16-6	8	120v ac
- 3	TB17-6	7	120v ac
- 4	TB18-6	5	120v ac

Table 5. Equipment Rack Wiring (Cont)

FROM	TO	WIRE COLOR	FUNCTION
MANUAL RECEIVER 1A16			
P42- 1	TB13-4	0	Audio Shield
- 2	TB13-1	93	Carrier Ind Switch
- 3	TB13-2	94	Carrier Ind Switch
- 4	TB13-10	95	Rcvr Muting
- 5	TB13-3	3	600 Ohm Audio
- 6	TB13-5	4	600 Ohm Audio
- 7	NO CONNECTION	-	Spare Pin
- 8	TB19-6	9	Ac Grd
- 9	TB16-6	8	120v ac Ø1
-10	TB17-6	7	120v ac Ø2
-11	TB18-6	5	120v ac Ø3
-12	TB13-7	98	Spare
-13	TB13-4	0	Grd
-14	TB13-6	6	Spare
-15	TB15-1	901	Spare
-16	TB15-2	902	Spare
-17	TB15-3	903	Spare
-18	TB15-4	904	Spare
-19	TB15-5	905	Spare

Table 6. Signal Junction Box Wiring

FROM	TO	WIRE COLOR	FUNCTION
UPPER SIGNAL JUNCTION BOX (See note)			
S1	TB1-3	91	Rcvr Audio (600 Ohm)
T1	TB1-5	93	Rcvr Audio (600 Ohm)
S2	TB1-8	94	Hv Intlk & Push-To-Talk
T2	TB1-1	90	Rf Recd
S3	TB2-1	96	Xmtr Audio
T3	TB2-3	97	Xmtr Audio
S4	TB2-4	98	Low Pwr
T4	TB1-9	95	Rf On
S5	TB2-6	906	High Vswr
T5	-	-	Not Used
S6	-	-	Not Used
T6	-	-	Not Used
S7	-	-	Not Used
T7	-	-	Not Used
S8	TB4-3	908	Rcvr Audio (600 Ohm)
T8	TB4-5	913	Rcvr Audio (600 Ohm)
S9	TB4-8	914	Hv Intlk & Push-To-Talk
T9	TB4-1	907	Rf Recd
S10	TB5-1	916	Xmtr Audio
T10	TB5-3	917	Xmtr Audio
S11	TB5-4	918	Low Pwr
T11	TB4-9	915	Rf On
S12	TB5-6	924	High Vswr
T12	-	-	Not Used
S13	-	-	Not Used
T13	-	-	Not Used
S14	-	-	Not Used
T14	-	-	Not Used
S15	-	-	Not Used
T15	TB7-1	925	Rf Recd
S16	TB7-5	927	Rcvr Audio (600 Ohm)
T16	TB7-3	926	Rcvr Audio (600 Ohm)
S17	TB7-9	934	Rf On
T17	TB7-8	928	Hv Intlk & Push-To-Talk
S18	TB8-3	936	Xmtr Audio
T18	TB8-1	935	Xmtr Audio
S19	TB8-6	938	High Vswr
T19	TB8-4	937	Low Pwr
S20	TB9-1	901	Chan Sel 1
T20	TB3-8	0	Grd
S21	TB9-3	903	Chan Sel 3
T21	TB9-2	902	Chan Sel 2
S22	TB9-5	905	Chan Sel 5
T22	TB9-4	904	Chan Sel 4

NOTE:

Connections between the shelter equipment and the outside line terminals of the signal junction boxes are made via shelter cabling to the equipment side of the protective devices in the signal junction boxes. Refer to the signal junction box schematic diagram for further details.

Table 6. Signal Junction Box Wiring (Cont)

FROM	TO	WIRE COLOR	FUNCTION
UPPER SIGNAL JUNCTION BOX (Cont)			
S23	-	-	Not Used
T23	-	-	Not Used
S24	-	-	Not Used
T24	-	-	Not Used
S25	-	-	Not Used
T25	-	-	Not Used
S26	-	-	Not Used
T26	-	-	Not Used
LOWER SIGNAL JUNCTION BOX (See note on page 70)			
S1	TB10-3	946	Rcvr Audio (600 Ohm)
T1	TB10-5	947	Rcvr Audio (600 Ohm)
S2	TB10-8	948	Hv Intlk & Push-To-Talk
T2	TB10-1	945	Rf Recd
S3	TB11-1	957	Xmtr Audio
T3	TB11-3	958	Xmtr Audio
S4	TB11-4	928	Low Pwr
T4	TB10-9	956	Rf On
S5	TB11-6	91	High Vswr
T5	TB13-1	94	Rf Recd
S6	TB13-3	90	Rcvr Audio (600 Ohm)
T6	TB13-5	96	Rcvr Audio (600 Ohm)
S7	TB13-8	93	Hv Intlk & Push-To-Talk
T7	TB13-9	98	Rf On
S8	TB14-1	95	Xmtr Audio
T8	TB14-3	926	Xmtr Audio
S9	TB14-4	97	Low Pwr
T9	TB14-6	925	High Vswr
S10	TB22-t	1	Tel Audio Out
T10	TB22-T	91	Tel Audio Out
S11	TB22-r	0	Tel Audio In
T11	TB22-R	90	Tel Audio In
S12	TB22-1	2	Telephone Spare
T12	TB22-2	92	Telephone Spare
S13	TB22-3	3	Telephone Spare
T13	TB22-4	93	Telephone Spare
J27-A	P64-J	0	Transmit Line Out
-B	P64-K	90	Transmit Line Out
-C	P64-A	1	Receive Line Out
-D	P64-B	91	Receive Line Out
-E	P49-J	5	Line Output
-F	P49-K	95	Line Output
-G	P49-A	6	Line Input
-H	P49-B	96	Line Input
-J	P52-J	5	Line Output
-K	P52-K	95	Line Output

Table 6. Signal Junction Box Wiring (Cont)

FROM	TO	WIRE COLOR	FUNCTION
LOWER SIGNAL JUNCTION BOX (Cont)			
J27-L	P52-A	6	Line Input
-M	P52-B	96	Line Input
-N	P55-J	5	Line Output
-P	P55-K	95	Line Output
-R	P55-A	6	Line Input
-S	P55-B	96	Line Input
-T	P58-J	5	Line Output
-U	P58-K	95	Line Output
-V	P58-A	6	Line Input
-W	P58-B	96	Line Input
-X	LWR. SIG JB S10	1	Transmit Audio Pair
-Y	LWR. SIG JB T10	91	Telephone
-Z	LWR. SIG JB S11	0	Receive Audio Pair
-a	LWR. SIG JB T11	90	Telephone
-b	-	-	Not Used
-c	-	-	Not Used
-d	-	-	Not Used
-e	-	-	Not Used
-f	-	-	Not Used
-g	-	-	Not Used
-h	-	-	Not Used
-i		-	Not Used
-j	-	-	Not Used
-k	-	-	Not Used
-1	-	-	Not Used
-m	-	-	Not Used
-n	-	-	Not Used
-o	-	-	Not Used
-p	-	-	Not Used
-q	-	-	Not Used
-r	-	-	Not Used
-s	-	-	Not Used
-t	-	-	Not Used
-u	-	-	Not Used
-v	-	-	Not Used
-w	-	-	Not Used
-x	-	-	Not Used
-y	-	-	Not Used
-z	-	-	Not Used
-aa	-	-	Not Used
-bb	-	-	Not Used
-cc	-	-	Not Used

Table 7. Electronic Telephone Equipment Wiring

FROM	TO	WIRE COLOR	FUNCTION
TELEPHONE EQUIPMENT CONTROL NO. 1			
P45-A	DISTR. PNL GRD	5	Grd
-B	TB20-3	0	120v ac 60 cps Hot
-C	-	-	Not Used
-D	-	-	Not Used
-E	TB21-3	9	120v ac 60 cps Common
-F	-	-	Not Used
P46-A	TB9-7	6	Line Input
-B	TB9-8	96	Line Input
-C	-	-	Not Used
-D	-	-	Not Used
-E	TB9-6	4	Enable
-F	-	-	Not Used
-G	-	-	Not Used
-H	-	-	Not Used
-J	TB9-9	5	Line Output
-K	TB9-10	95	Line Output
-L	-	-	Not Used
P47-A	TB7-3	3	600 Ohm Audio (Machine In)
-B	TB7-5	7	600 Ohm Audio (Machine In)
-C	TB8-1	92	Remote Audio (Machine Out)
-D	TB8-3	2	Remote Audio (Machine Out)
-E	TB7-8	93	Hv Intlk & Push-To-Talk (Xmtr Key)
-F	TB8-9	0	Grd
-G	TB7-1	1	Carrier Ind Switch (Ext Seize)
-H	TB7-2	91	Carrier Ind Switch (Ext Seize)
-J	P47-K	0	Interlock
-K	P47-J	0	Interlock
-L	TB8-9	90	Grd
TELEPHONE EQUIPMENT CONTROL NO. 2			
P48-A	DISTR. PNL GRD	5	Grd
-B	TB20-4	0	120v ac 60 cps Hot
-C	-	-	Not Used
-D	-	-	Not Used
-E	TB21-4	9	120v ac 60 cps Common
-F	-	-	Not Used
P49-A	J27-G	6	Line Input
-B	J27-H	96	Line Input
-C	-	-	Not Used
-D	-	-	Not Used
-E	-	-	Not Used
-F	-	-	Not Used

Table 7. Electronic Telephone Equipment Wiring (Cont)

FROM	TO	WIRE COLOR	FUNCTION
TELEPHONE EQUIPMENT CONTROL NO. 2 (Cont)			
P49-G	-	-	Not Used
-H	-	-	Not Used
-J	J27-E	5	Line Output
-K	J27-F	95	Line Output
-L	-	-	Not Used
P50-A	TB1-3	3	600 Ohm Audio (Machine In)
-B	TB1-5	7	600 Ohm Audio (Machine In)
-C	TB2-1	92	Remote Audio (Machine Out)
-D	TB2-3	2	Remote Audio (Machine Out)
-E	TB1-8	93	Hv Intlk & Push-To-Talk (Xmtr Key)
-F	TB2-9	0	Grd
-G	TB1-1	1	Carrier Ind Switch (Ext Seize)
-H	TB1-2	91	Carrier Ind Switch (Ext Seize)
-J	P50-K	0	Interlock
-K	P50-J	0	Interlock
-L	TB2-9	90	Grd
TELEPHONE EQUIPMENT CONTROL NO. 3			
P51-A	DISTR. PNL GRD	5	Grd
-B	TB20-5	0	120v ac 60 cps Hot
-C	-	-	Not Used
-D	-	-	Not Used
-E	TB21-5	9	120v ac 60 cps Common
-F	-	-	Not Used
P52-A	J27-L	6	Line Input
-B	J27-M	96	Line Input
-C	-	-	Not Used
-D	-	-	Not Used
-E	-	-	Not Used
-F	-	-	Not Used
-G	-	-	Not Used
-H	-	-	Not Used
-J	J27-J	5	Line Output
-K	J27-K	95	Line Output
-L	-	-	Not Used
P53-A	TB4-3	3	600 Ohm Audio (Machine In)
-B	TB4-5	7	600 Ohm Audio (Machine In)
-C	TB5-1	92	Remote Audio (Machine Out)
-D	TB5-3	2	Remote Audio (Machine Out)
-E	TB4-8	93	Hv Intlk & Push-To-Talk (Xmtr Key)
-F	TB5-9	0	Grd
-G	TB4-1	1	Carrier Ind Switch (Ext Seize)

Table 7. Electronic Telephone Equipment Wiring (Cont)

FROM	TO	WIRE COLOR	FUNCTION
TELEPHONE EQUIPMENT CONTROL NO. 3 (Cont)			
P53-H	TB4-2	91	Carrier Ind Switch (Ext Seize)
-J	P53-K	0	Interlock
-K	P53-J	0	Interlock
-L	TB5-9	90	Grd
P54-A	DISTR. PNL GRD	5	Grd
-B	TB20-6	0	120v ac 60 cps Hot
-C	-	-	Not Used
-D	-	-	Not Used
-E	TB21 6	9	120v ac 60 cps Common
-F	-	-	Not Used
TELEPHONE EQUIPMENT CONTROL NO. 4			
P55-A	J27-R	6	Line Input
-B	J27-S	96	Line Input
-C	-	-	Not Used
-D	-	-	Not Used
-E	-	-	Not Used
-F	-	-	Not Used
-G	-	-	Not Used
-H	-	-	Not Used
-J	J27-N	5	Line Output
-K	J27-P	95	Line Output
-L	-	-	Not Used
P56-A	TB10-3	3	600 Ohm Audio (Machine In)
-B	TB10-5	7	600 Ohm Audio (Machine In)
-C	TB11-1	92	Remote Audio (Machine Out)
-D	TB11-3	2	Remote Audio (Machine Out)
-E	TB10-8	93	Hv Intlk & Push-To-Talk (Xmtr Key)
-F	TB11-9	0	Grd
-G	TB10-1	1	Carrier Ind Switch (Xmtr Seize)
-H	TB10-2	91	Carrier Ind Switch (Xmtr Seize)
-J	P56-K	0	Interlock
-K	P56-J	0	Interlock
-L	TB11-9	90	Grd
TELEPHONE EQUIPMENT CONTROL NO. 5			
P57-A	DISTR. PNL GRD	5	Grd
-B	TB20-6	0	120v ac 60 cps Hot
-C	-	-	Not Used
-D	-	-	Not Used
-E	TB21-6	9	120v ac 60 cps Common
-F	-	-	Not Used

Table 7. Electronic Telephone Equipment Wiring (Cont)

FROM	TO	WIRE COLOR	FUNCTION
TELEPHONE EQUIPMENT CONTROL NO. 5 (Cont)			
P58-A	J27-V	6	Line Input
-B	J27-W	96	Line Input
-C	-	-	Not Used
-D	-	-	Not Used
-E	-	-	Not Used
-F	-	-	Not Used
-G	-	-	Not Used
-H	-	-	Not Used
-J	J27-T	5	Line Output
-K	J27-U	95	Line Output
-L	-	-	Not Used
P59-A	TB13-3	3	600 Ohm Audio (Machine In)
-B	TB13-5	7	600 Ohm Audio (Machine In)
-C	TB14-1	92	Remote Audio (Machine Out)
-D	TB14-3	2	Remote Audio (Machine Out)
-E	TB13-8	93	Hv Intlk Push-To-Talk (Xmtr Key)
-F	TB14-9	0	Grd
-G	TB13-1	1	Carrier Ind Switch (Xmtr Seize)
-H	TB13-2	91	Carrier Ind Switch (Xmtr Seize)
-J	P59-K	0	Interlock
-K	P59-J	0	Interlock
-L	TB14-9	90	Grd
REMOTE SWITCH CONTROL			
P62-A	DISTR PNL GRD	5	Grd
-B	TB20-2	0	120v ac 60 cps Hot
-C	-	-	Not Used
-D	-	-	Not Used
-E	TB21-2	9	120v ac 60 cps Common
-F	-	-	Not Used
P63-A	TB6-9	94	Remote Chan Sel 4 (Output)
-B	-	-	Not Used
-C	TB6-8	4	Remote Chan Sel 3 (Output)
-D	-	-	Not Used
-E	TB6-7	96	Remote Chan Sel 2 (Output)
-F	-	-	Not Used
-G	TB6-6	6	Remote Chan Sel 1 (Output)
-H	-	-	Not Used
-J	TB7-4	95	Shield
-K	-	-	Not Used
-L	-	-	Not Used

Table 7. Electronic Telephone Equipment Wiring (Cont)

FROM	TO	WIRE COLOR	FUNCTION
REMOTE SWITCH CONTROL (Cont)			
P64-A	J27-C	1	Receive Line In
-B	J27-D	91	Receive Line In
-C	TB9-7	2	Receive Line Out
-D	TB9-8	92	Receive Line Out
-E	TB9-6	7	Enable
-F	TB8-2	9	Grd
-G	TB9-9	3	Transmit Line In
-H	TB9-10	93	Transmit Line In
-J	J27-A	0	Transmit Line Out
-K	J27-B	90	Transmit Line Out
-L			Not Used

Table 8. Telephone Terminal Board Wiring

FROM	TO	WIRE COLOR	FUNCTION
TELEPHONE TERMINAL BOARD			
TB22- t	LWR. SIG JB S10	1	Tel Audio Out
- T	LWR. SIG JB T10	91	Tel Audio Out
- r	LWR. SIG JB S11	0	Tel Audio In
- R	LWR. SIG JB T11	90	Tel Audio In
- 1	LWR. SIG JB S12	2	Telephone Spare
- 2	LWR. SIG JB T12	92	Telephone Spare
- 3	LWR. SIG JB S13	3	Telephone Spare
- 4	LWR. SIG JB T13	93	Telephone Spare
G TERMINAL ON TELEPHONE	DISTRIBUTION PANEL GRD	9	Grd

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